

APRIL '60

MODERN TEXTILES

MAGAZINE

Specializing in Man-Made Fibers and Blends since 1925

FIBERS

FABRICS

FINISHES



Textiles' new
spokesman—
J. M. CHEATHAM
of Dundee Mills—
story page 21

THIS MONTH

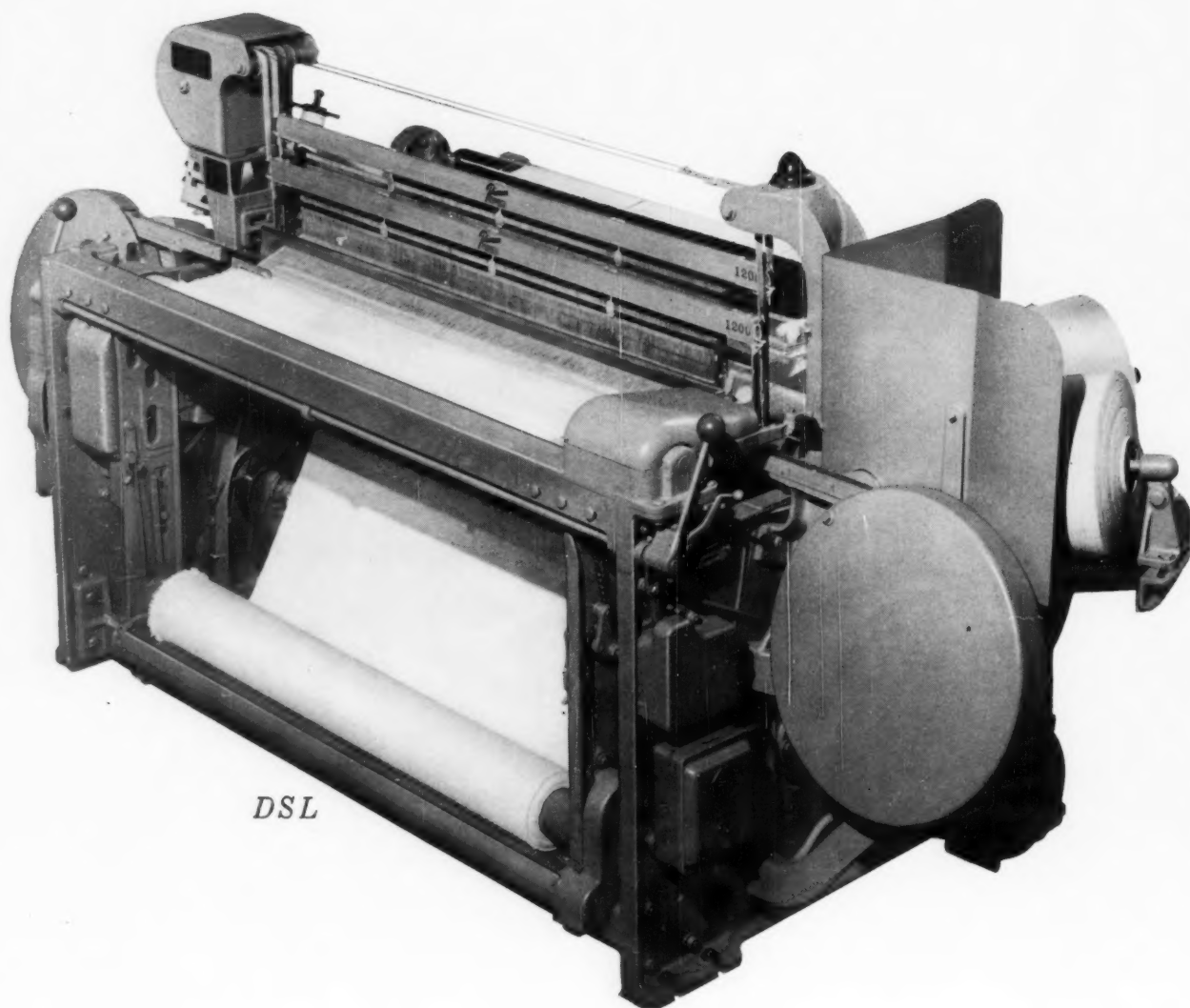
Dyeing Dacron-wool piece goods

Fixing machine assignments

Nylon trends in England

New acetylated cellulose fiber

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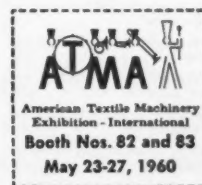
The Sonoco Velvet Surface cone is typical of the dependable products manufactured by a fully integrated company with 60 years' experience in creating and producing all types of textile paper carriers. Only Sonoco, in its field, provides the knowledge, skill and capacity to meet the ever-changing techniques of the textile industry. Let Sonoco experience help you!



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Products for Textiles

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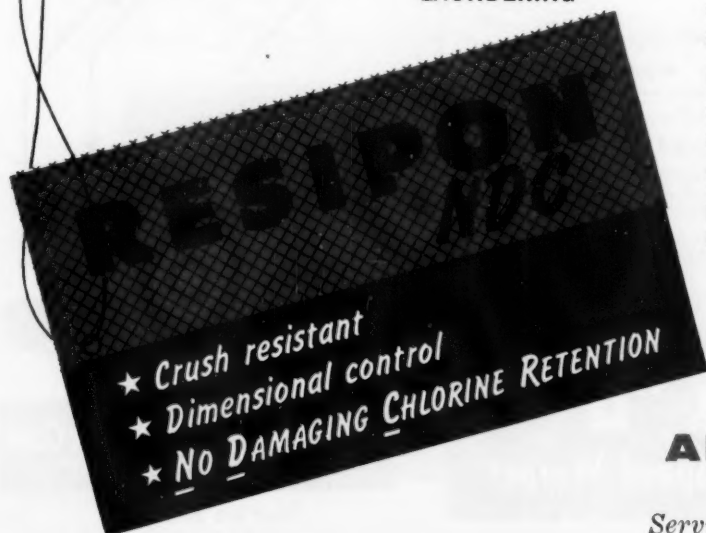
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Conference on Blending in May

A conference to be held May 17 and 18 in Natick, Mass., will discuss new developments in the blending and combining of different yarns and fibers. Sponsor of the conference is the Committee on Textile Fabrics of the National Academy of Sciences. The chairman will be J. B. Goldberg, textile consultant, who is a member of the sponsoring committee.

It is expected that about ten papers will be presented during the conference by leading scientists of industry, government and private research organizations. Topics will include various aspects of intimate blending, combining yarns of different fibers, esthetic properties and serviceability as well as application of blends to military uses. Registration is free and open

to anyone interested in textile research and development. Further information may be obtained from Dr. W. George Parks, University of Rhode Island, Kingston, R. I.

Burlington Head Optimistic

Based on the continuance of current favorable factors, 1960 will be a year of continued improvement for Burlington Industries, Inc., and the textile industry in general, according to Spencer Love, chairman and president. He told stockholders at the 36th annual meeting in Wilmington, Del., that the company now has the best peacetime forward order position in its history.

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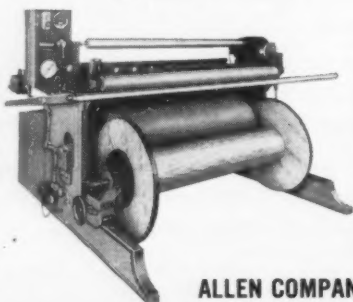
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Put this modern warper concept to work along with your other modern equipment. Time-proved, patented,—no other warper has these features.

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Roberts' Sales Up Sharply

Roberts Co.'s sales in the last six months of its fiscal year ended November 28, 1959, set a record of \$3,272,236, with profits after taxes coming to \$220,654, Robert E. Pomeranz, president, stated in the annual report. The last half year results recovered a loss incurred in the first six months of the fiscal period. Total 1959 sales were \$5,269,828 and net after tax profit \$60,529, as compared with sales of \$3,166,339 and an after tax loss of \$319,529 in 1958.

The company's optimism for 1960 stems from its highest order backlog on record at the end of a fiscal year—\$4,100,000 despite heavy shipments in the prior six months.

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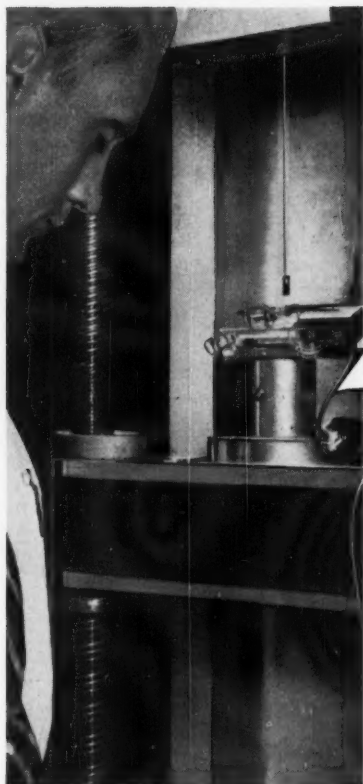
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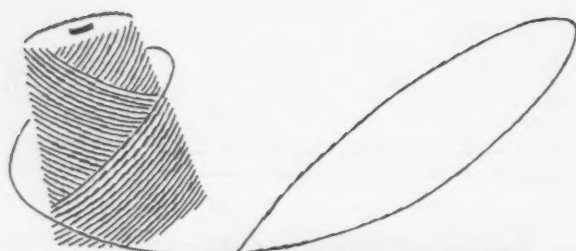
- Superior resistance to abrasion and pilling
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Vycron—T. M. Beaunit Mills, Inc., Fibers Division, New York, N.Y.



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in the Textile Industry

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900 Expected at ACMI Meeting

More than 900 persons are expected to attend the annual convention of the American Cotton Manufacturers Institute, April 7-9 at the Americana Hotel, Bal Harbour, Miami, Florida. James A. Chapman, of Inman and Riverdale Mills, president of ACMI, will deliver his presidential address at the opening session at 2:30 P.M. on April 7. At this session, Robert C. Jackson, ACMI's executive vice president also will deliver his report to the membership.

At the morning session on April 8, the guest speaker will be A. E. Buchanan, general manager of the textile fibers department of the Du Pont Co. The annual reception and banquet will be held during the evening of Friday, April 8.

During the closing session on the morning of April 9, W. T. Kroese of Holland, president of the International Cotton and Allied Textile Industries, of which ACMI is a member, will be the principal speaker. At this session also committee reports will be held and new officers elected.

If precedent is followed, J. M. Cheatham of Dundee Mills, Griffin, Ga., will move from first vice president to president, and R. Dave Hall of Climax Spinning Co. Belmont, N. C., will move from second to first vice president.

Changes at U.S. Textile Machine

Controlling interest in the 31-year old U. S. Textile Machine Co. has been purchased by the firm's officers who acquired the majority stock from the estate of Herbert Gleitz, former president of the company. The new officers are: A. W. Thomas, Jr., president; Donald W. Scheuer, secretary-treasurer; Pacific J. Thomas, vice president and director of engineering; Jerome D. Gleitz, vice president and director of manufacturing, and Chester L. Loveland, vice president of the glass fibers Division. The firm is a long-established designer and manufacturer of processing equipment for all yarns.

Consumer Apparel Survey

A nationwide consumer panel of 6,000 families began recording its purchases of 125 items of apparel, household furnishings and yard and piece goods on March 1 in a comprehensive study undertaken by the Market Research Corp. of America. Chemstrand Corp. and Eastman Chemicals Division of Eastman Kodak, Inc., have already subscribed to the study. The data obtained in the study will be made available to all segments of the textile industry, including synthetic fiber producers, textile mills, garment manufacturers, retail outlets and allied suppliers.

More Chemstrand Tire Yarn

Chemstrand Corp. plans to increase by more than 50% its capacity for production of nylon 66 tire and carpet yarns and yarns for industrial uses. The multi-million dollar expansion, coupled with plans for expansion in the near future by the industry, will assure tire manufacturers of a nylon tire yarn supply adequate to meet the total demand of the tire industry, Edward A. O'Neal, Jr., Chemstrand president, stated.

He pointed out that over 90% of the nylon yarns now used in tires is nylon 66. O'Neal said that nylon 66 yarn used in pneumatic tires showed an annual average increase over the past three years of more than 25% annually. Increased use of nylon 66 in many textile and industrial applications, he said, has further increased market demands for all types of nylon yarns. Chemstrand has developed a new textured nylon carpet yarn known as "Cumuloft" which is expected to require production of additional nylon 66 during 1960.



for permanent mothproofing

Wool yarn, blankets, rugs, suitings treated with Hartocide are protected against the damaging effects of moths and carpet beetle larva for the *life of the garment*.

The protection, achieved *at very low cost*, is applied directly in the dye bath, and remains through laundering, dry cleaning and all normal use conditions.

Wool articles properly treated with Hartocide exceed ASTM requirements for permanent mothproofing.

Write for an appointment with our Technical Director for a trial run and prove to yourself how economically you can add the *plus* of permanent mothproofing to your goods.

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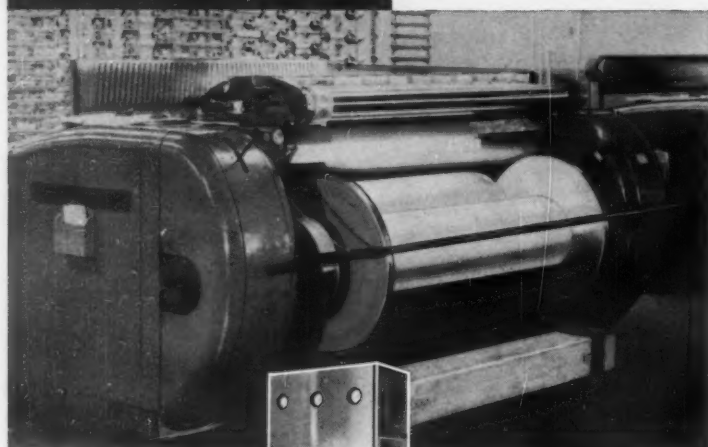


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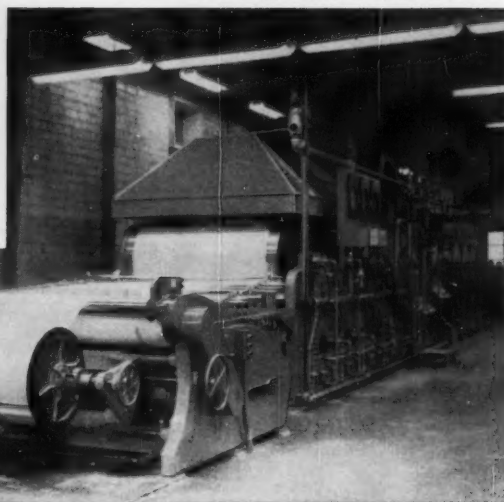
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The Cocker SD49 Warper and Creel



The New Cocker GH Slasher



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The Nemo Jet Cooker

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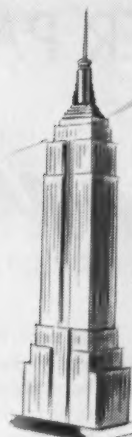
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New Enka Merchandising Center and New York District Sales Office at 350 Fifth Ave., New York 1, N. Y. PE 6-2300

To meet the needs of increased yarn production, Enka has expanded its Merchandising Department, located in new quarters in the Empire State Building, effective March 28th. Enka has intensified its merchandising coverage of the apparel, knit goods, home furnishings and household textiles markets from the mill level to the retail counter. In step with the company's program of aggressive merchandising and advertising support for customers' products containing Enka yarns and fibers, the New York sales and technical service operation also has been enlarged to serve you better.



PROVIDENCE, R. I.
DISTRICT SALES OFFICE



LOWLAND,
TENN.
PLANT

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DISTRICT SALES OFFICE

GREENSBORO, N. C.
DISTRICT SALES OFFICE

New Headquarters for Enka Marketing Division at Enka, North Carolina

This brand-new corporate office building, adjoining the company's plant and research center at Enka, North Carolina, will house Enka's centralized top management, effective March 21st. Recognizing that every phase of the company's operation is related to the sales function, Enka has headquartered its Marketing Division in the South to form a closely-knit management team composed of Marketing, Research, Manufacturing, Finance and administration. This major step to achieve total marketing efficiency means improved service for Enka customers.

A growing American Enka Corporation ...on the move to serve you better

Expansion by American Enka Corporation of sales, technical service and merchandising manpower in New York; centralization of top management in North Carolina; and the strengthening of district sales offices mean increased selling and merchandising efficiency for our customers, their customers and all who use Enka rayon and nylon yarns and fibers in their products.

PLANTS: Enka, North Carolina, Nylon yarn, rayon yarn, Tyrex® tire yarn; Lowland, Tennessee, Rayon staple, Tyrex® tire yarn, Jetspun® and Skyloft® solution-dyed rayon.

No change will occur in the day-to-day contact Enka customers have with the company's sales and technical service representatives. Enka personnel will continue to

serve you as they have in the past, from these district sales offices:

DISTRICT SALES OFFICES: New York: 350 Fifth Ave., New York 1, N. Y., PE 6-2300; Providence: 2009 Industrial Bank Bldg., Providence 3, R. I., GASpee 1-2494; Greensboro: 428 Jefferson Standard Bldg., Greensboro, N. C., BRoadway 2-0114; Chattanooga: 871 McCallie Ave., Chattanooga, Tenn., AMherst 6-2134.



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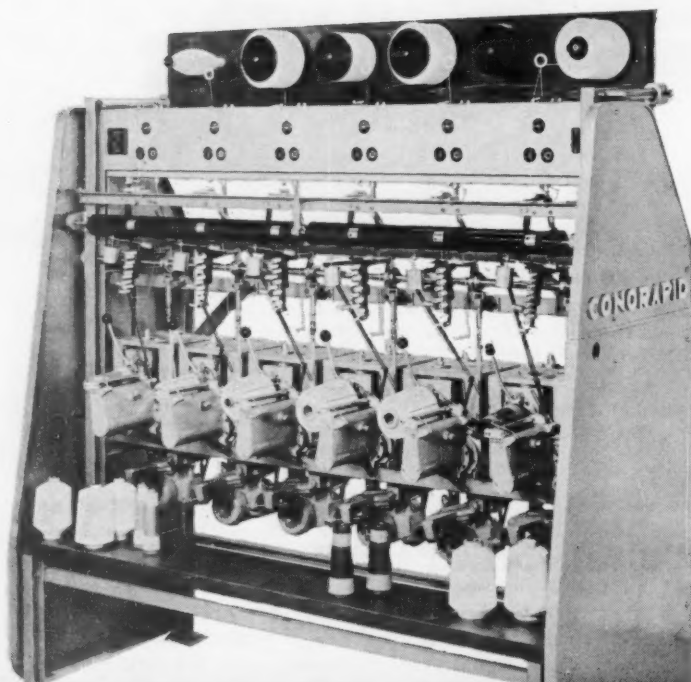
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PRECISION CROSS WINDER

The superior design of the "CONORAPID" Precision Cross-Winder eliminates vibration and greatly reduces noise. Average number of packages produced is increased by $1\frac{1}{2}$ to 3 times because of its greater operating speeds which range from 2,000 to 4,000 rpm. Yarn guide is of basically new design—owing to fast oscillation. Despite greatly increased revolutions the yarn guide traverse ensures crossing ratios well within normal requirements.

Tension tests (conducted with electric measuring device) indicate uniformly low fluctuation. Average tension during build-up of complete package can be maintained at a constant low, or can be slightly decreased. This assures a firm build-up and uniform hardness from inside to outside, including the surface of the package. Unwinding is similarly assisted and improved.

- 2-4000 rpm operation speed.
- $1\frac{1}{2}$ to 3 times greater production.



Additional Features:

- Heavier packages can be built up because of heavy duty bearings and rotating parts.
- A few simple adjustments permit the production of various packages including: cones, pineapple cones, bi-cones, cylinder cheeses, etc.
- Winding field is readily adaptable to character of material being used.
- Greatly minimized temperature and atmospheric fluctuations virtually guarantee better quality fine denier packages of 1-1 $\frac{3}{4}$ —in less time (1-5 hours). The same holds true for packages of heavier denier and greater weight—including textured yarns such as Banlon, Helanca, etc.
- Empty packages and thread breaks are electrically signalled to operator.
- Higher speeds and increased production make for substantial economies in space and labor.

Write today for complete data on the "CONORAPID" Precision Cross-Winder—available only from Reiner.

See the new "CONORAPID" Precision Cross-Winder in action—American Textile Machinery Exhibition, Atlantic City, N. J., May 23-27—Reiner Booths #1305-07.

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VYCRON
Specifications

FIBER STRUCTURE:

Vycron is a polyester fiber differing from other polyesters in its total chemical constitution and its basic structure. Its structure is designed to give better dyeing properties along with good fiber processing and wearing characteristics.

FIBER PROPERTIES:

	<i>Vycron Staple Fiber</i>
<i>Tensile Strength</i>	5.6 g/d
<i>Break Elongation</i>	35%
<i>Modulus of Elasticity</i>	0.5 g/d/%
<i>Resilience as measured by work recovery</i>	
<i>from 2% extension</i>	93
<i>from 5% extension</i>	44
<i>from 10% extension</i>	33
<i>Toughness</i>	1.75 gm. cm./ cm. den.
<i>Moisture Absorption</i>	0.6%
<i>Specific Gravity</i>	1.36

HEAT RESISTANCE:

The heat resistance of Vycron Fiber is good. Melting point is 455°F. Fabrics of Vycron may be ironed safely at temperatures as high as 350°F.

RESISTANCE TO CHEMICALS:

Vycron has good resistance to common solvents and cleaning agents. It is not affected by acids or alkalis normally encountered by apparel fabrics.

RESISTANCE TO WEATHERING:

Good.

FLAMMABILITY:

Vycron will burn slowly but melts and drops off when hanging free.

MILL PROCESSING:

Vycron Fiber can be processed excellently on standard spinning systems. The Fiber has extremely good fiber to fiber cohesion and is exceptionally strong. Yarns spun from it are stronger than yarns spun from other polyesters. Even fine counts perform excellently because of the extra strength and evenness.

DYEABILITY:

The affinity and dyeing rate of Vycron for dispersible acetate colors and developed azoics is slightly greater than for some of the competitive polyesters. When selected dyes are properly applied, good fastness is achieved. Laboratory tests confirmed by commercial runs evidence excellent colorfastness to laundering, hot pressing, hot wet pressing, sublimation, perspiration, gas fading, solvent rubbing, light, and crocking wet and dry.

DIMENSIONAL STABILITY:

To produce a fabric with good dimensional stability, heat setting is necessary. In fabrics where the blend contains a high percentage of rayon or cotton, thermosetting resins or compressive shrinking may be necessary.

Heat setting temperatures and equipment suitable vary, depending on the particular fabric. Generally we recommend somewhat lower heat setting temperatures than for other polyesters. A maximum of 365° for 45 seconds has been found adequate.

WASH & WEAR PERFORMANCE:

Vycron fabrics and fabrics made with proper blends of other fibers show remarkable wrinkle resistance and crease retention after wash and wear tests.

PILLING:

Vycron has outstanding resistance to pilling. Even though its strength is high, its basic physical structure is such that pilling does not normally occur.

BLEND LEVELS:

Blends are permitted with Cotton or other synthetics as long as the minimum Vycron is 50% of the total blend.

VYCRON POLYESTER FIBER is now being produced in the following forms:

STAPLE in 1½ and 3 denier, for apparel and industrial fabrics.

SPECIAL PROCESS YARNS Vycron filament yarn, combined with other yarns such as Bemberg® or viscose rayons, for unusual surface interest in apparel and decorative fabrics.

TOW for Pacific Converters in 1½ and 3 denier for apparel and industrial fabrics.

TOW for Direct Spinners . . . to be spun into yarns for blouses, skirts, underwear, dresses, suits, shirts, rainwear and industrial fabrics.

CONTINUOUS FILAMENT YARNS 420 denier and greater, in 1½ and 3 denier per filament.

VYCRON is America's only polyester fiber tested and certified under a regular program by the U. S. Testing Company.

BEAUNIT MILLS, Inc.
Fibers Division

261 Fifth Avenue, New York 16, N. Y.

*Registration applied for

UNLESS WASH & WEAR HAS BEAUTY TOO... IT'S NO SOAP!

FOR
BEAUTY'S
SAKE
BLEND
WITH
COURTAULDS
FIBERS.....

If wash-and-wear hasn't got beauty, who wants to wash and wear it? Nobody! But if wash-and-wear is a delight to the eye and hand, everybody's your customer. That's where Courtaulds fibers come in. They're planned in the lab to glorify fabric—they're wonderful 100%—they make news in blends. And Courtaulds fibers actually improve wash-and-wear performance...reduce piling and clinging to a minimum...retain quality to the full. Read all about Coloray, Corval, Topel. Blend with them. Do a *beautiful* wash-wear business with them!

COLORAY®

To make color beautiful, and keep it that way for a lifetime of wash-and-wear cycles, there's Courtaulds' solution-dyed Coloray. Flooded with color in the solution-stage. Solidified into a color fiber with exceptional glow, richness and—colorfastness. Coloray color is not affected by washing in the most severe water temperatures. Coloray fabric has been boiled at 212 degrees without streaking, running or fading. Coloray fiber also softens the hand of a blended fabric—makes it lovelier to touch. And it blends with all fibers.



CORVAL®

Wash and wear needs a beautiful look *and* a beautiful feeling. It gets both from Courtaulds' cross-linked Corval, a revolutionary new rayon that produces effects of great luxury in blends with synthetic fibers. Corval creates warmth, comfort, and rich dye-ability in all kinds of fiber combinations: with Dacron, Acrilan, Zefran, Creslan and Orlon—to name a few. Corval can also create crisp or lustrous fabrics—it is a highly versatile fiber as well as a beauty-maker.



TOPEL®

To enhance lustre, texture and color, there's Topel, Courtaulds' cross-linked rayon fiber that blends most happily on the cotton system. Topel drinks dye thirstily, makes color bloom. Topel is a millman's dream, produces extremely fine-looking weaves. Combined with Dacron, Kodel, Nylon or any performance synthetic, Topel produces fabrics of surpassing luxury as well as wash-and-wear ability. Topel is also blendable with natural fibers and agreeable to any finish.

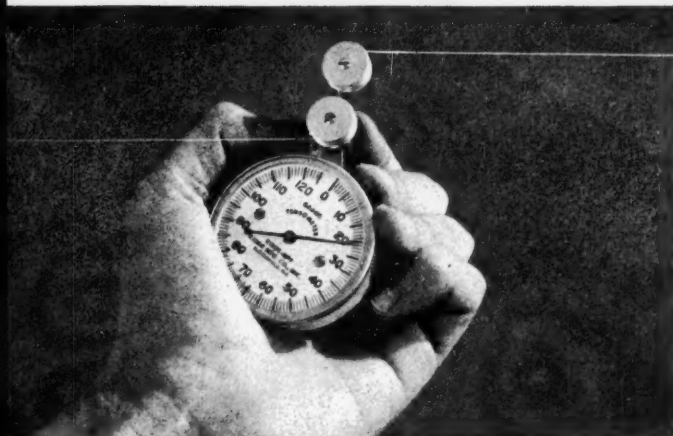


Courtaulds (Alabama) Inc., *first in man-made fibers, first in cross-linking, first in solution-dyeing,*

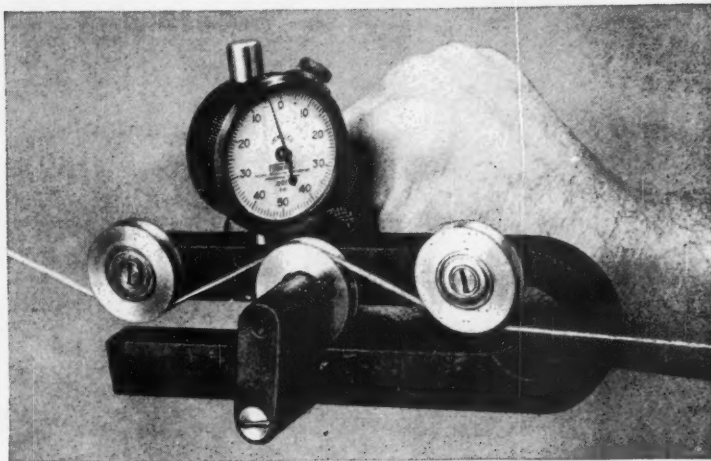
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Acrilan—Chemstrand's reg. T.M. for its acrylic fiber • Creslan—American Cyanamid's T.M. for its acrylic fiber • Dacron—Du Pont's T.M. for its polyester fiber • Kodel—Eastman's T.M. for its polyester fiber • Orlon—Du Pont's T.M. for its acrylic fiber • Zefran—acrylic fiber of the Dow Chemical Co.

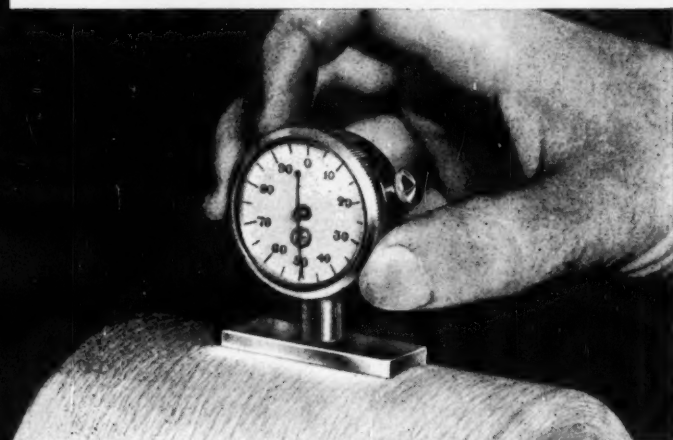
4 ways to Faultless Fabrics



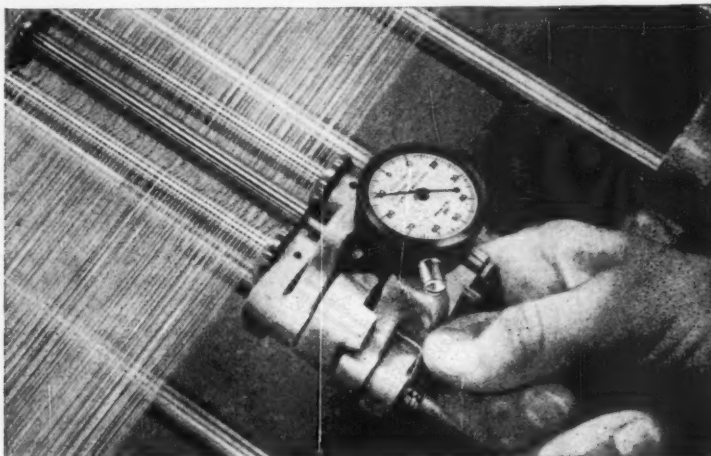
THE KIDDE-SIPP STANDARD TENSOMETER has a dampening device that gives steady readings without fluctuations. This pocket-size Tensometer is made in three ranges: up to 25 grams for fine denier yarns, 125 grams for most applications, or 250 grams for heavy yarns.



THE KIDDE-SIPP HEAVY DUTY TENSOMETER is available with tension ranges of 10, 20, 30, 50 and 100 pounds. It permits the quick, accurate measurement of tensions in a strand of thread, yarn, cord or wire. It is durable, and retains its accuracy.



THE KIDDE-SIPP DENSIMETER insures equal density on packages, prevents "sloughing off" on cops and quills. It may also be used with a Tensometer to assure packages of uniform density. Operation is extremely simple, and the dial is clear and easy to read.



THE KIDDE-SIPP SLASHER TENSOMETER permits the operator to check for equal tensions in all yarn sheets, no matter how many creel beams are used. Tensions can be compared, and beam let-offs adjusted to even out differences.

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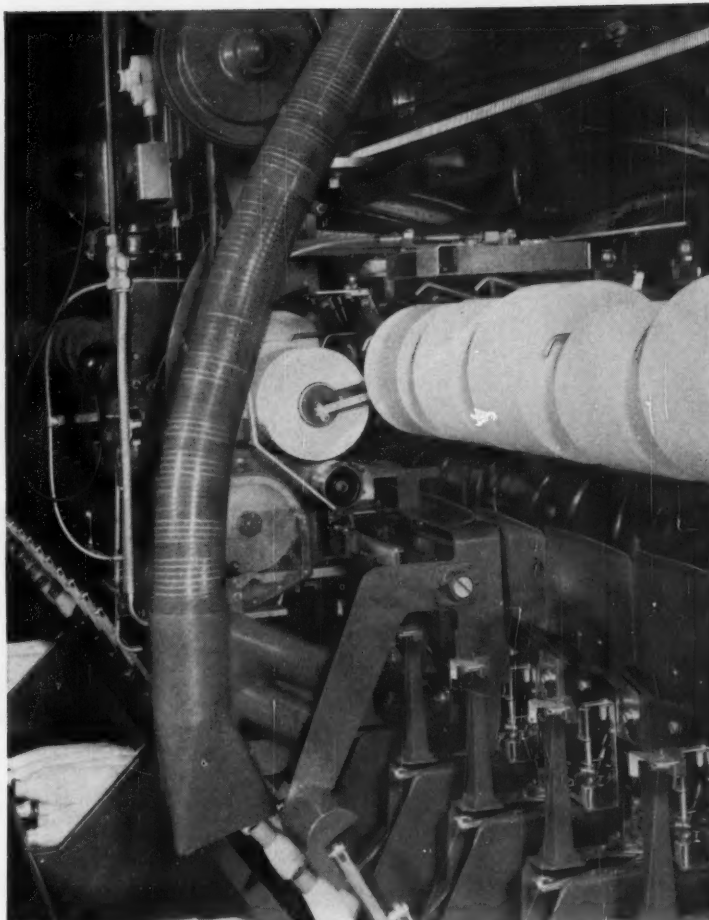
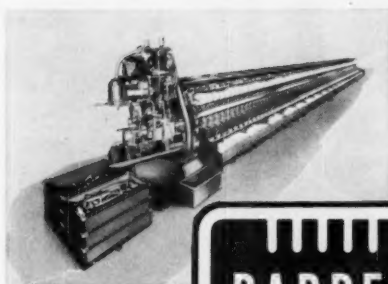
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AMERICAN
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**ATLANTIC
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NEW JERSEY
MAY 23 - 27, 1960



A close-up of the traveler moving along the machine, picking up the end from each bobbin and automatically tying it to the loose end of the corresponding cheese.

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TYPE "F" MAKES LARGE CHEESES from LARGE BOBBINS

Increased capacity in the new Type "F" Automatic Spooler shown above permits spooling of cheeses up to 6½ lbs. from bobbins up to 12¼" long. This has been accomplished by the improvement of a number of distinctive Barber-Colman features. The bobbin pockets have been lengthened and the skewer mechanism enlarged. Wider bakelite winding drums have crossover grooves and are permanently balanced. Double cheese-supporting arms have built-in brakes.

Quick-set snick plates, a feature proved highly successful in the elimination of yarn imperfections, have been re-designed. A tape-breaker mechanism is an innovation which greatly improves the build of the cheese. The use of 6½ lb. cheeses as produced on this machine can lead to production improvements for a wide variety of fabrics and in a number of important processes including knitting, quillers, and shuttleless looms. *For full information on details of improvements and how the new Type "F" Automatic Spooler can benefit you, see your Barber-Colman representative.*

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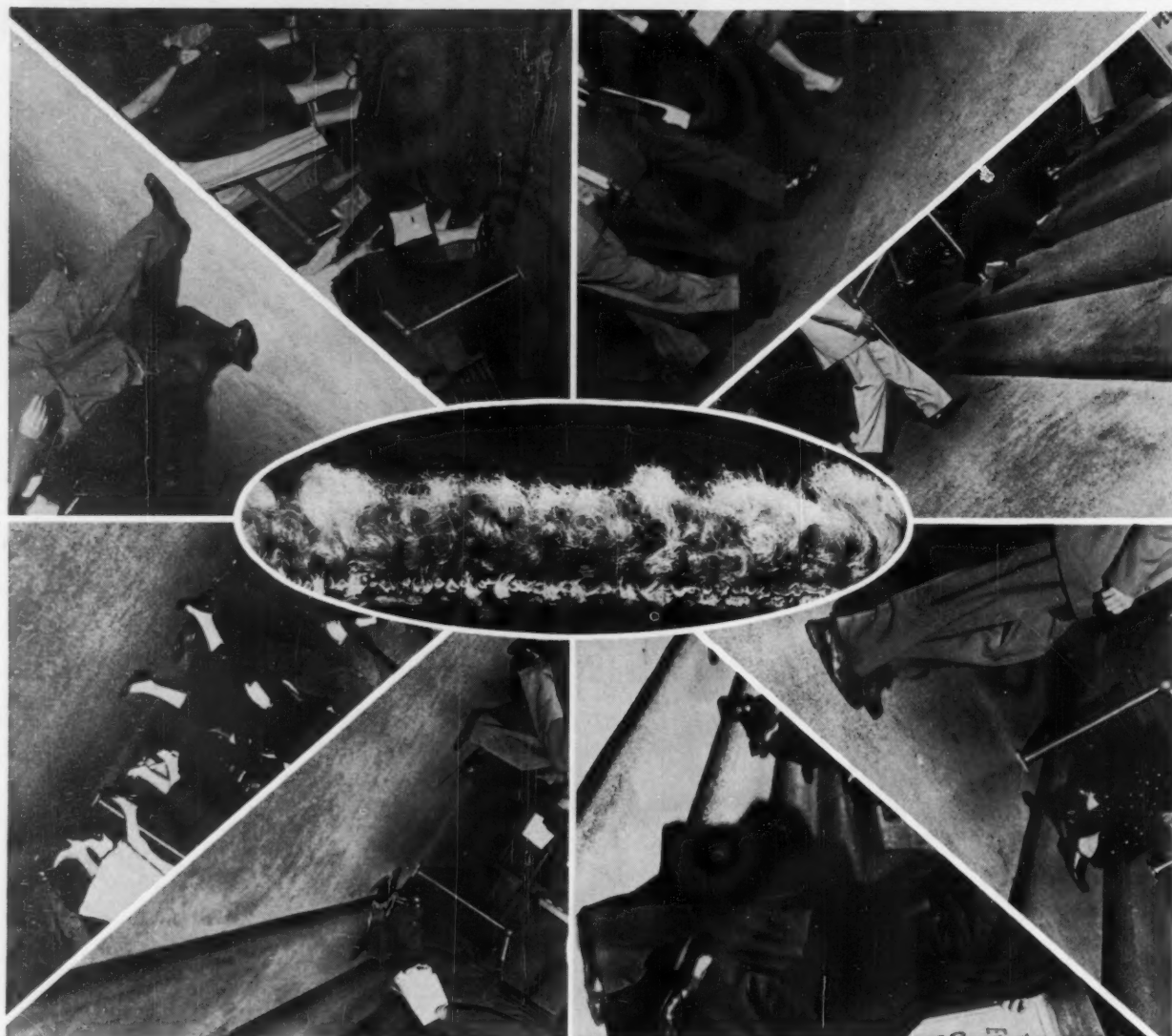
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TOUGH YARNS FOR TOUGH JOBS...



...CARPET, for example

Recently, a dramatic comparison wear-test of carpets of Textured Caprolan was conducted by Allied Chemical in New York's busy Penn Station. More than a million-and-a-half people trampled across the carpet without any detectable sign of wear or significant loss of texture. This is easily seen in the cross section of the actual carpet shown above. The test was a milestone in the rapid progress of textured filament nylon for home furnishings fabrics such as carpets and upholstery.

This innovation, pioneered by Allied Chemical, was made possible by the introduction of our Caprolan nylon heavy yarns. Strong and durable, they have an outstanding affinity for virtually every class of dyestuff. These white, white yarns also possess excellent workability with heat and are completely compliant with every texturing process which has been called to our attention in the past four years!

Caprolan heavy yarns are now included in U.S. Navy specifications for

marine rope, Government specifications for aircraft seat belt webbings and are enjoying increasing use in fire hose, seine twine, cords and dozens of other end-uses where toughness, strength and flexibility are essential.

If you have a tough job, we have the tough yarns for it. Call our technical staff for help in improving existing products or developing new ones with our wide range of deniers in Caprolan nylon heavy yarns.



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MODERN TEXTILES

Magazine

Publisher's Viewpoint

For Textile Standards A Big Leap Forward

The publication last month of the new Standard of the American Standards Association for all apparel and home furnishings fabrics, regardless of fiber content or mixture, is an event of great good fortune for textiles and its allied industries. Called Standard L 22 like its predecessor which was limited to rayon and acetate fabrics, the new American Standard fixes minimum requirements for fabrics in 75 end uses in the areas of laundering, washability, shrinkage, colorfastness, wash-and-wear performance and other important performance characteristics.

Issuance of the new standard is the successful result of many months of work by representatives of 30 different trade groups interested in improved performance of end products made with fabrics. The committee of 40 members representing these groups voted unanimously for the approval of the Standard. It is, in our opinion, significant that among the trade groups taking the lead in the work of shaping the new Standard, and bringing about its approval was the Textile Distributors Institute, a trade organization of leading converters.

Now that the new American Standard for Performance Requirements of Textile Fabrics is a reality, the next great step is to bring about its widespread use. Mills, converters, dyers and finishers who took the lead in using the old L 22 as their standard for rayon and acetate fabrics were virtually unanimous in reporting that they benefited in a measurable dollars-and-cents way. They found that customer complaints dropped off sharply; that losses caused by second grade cloth were drastically reduced. They found, in short, that observance of L 22 was profitable.

We feel certain that the new, broader standard applying to all textile fabrics will prove equally beneficial for all those who have the courage to adopt it. And not only will individual mills, converters and finishers benefit by applying the standard to their own respective output. Widespread use of the new standard will in the long run benefit the entire fabric manufacturing industry and its allied trades because such general application will mean fewer complaints

about textile product performance coming from consumers. Let us remember that the satisfied consumer is a consumer who will buy more textile products for the greater profit of our industry in all its segments.

A Dubious Decision by the FTC

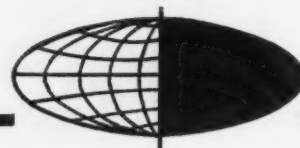
Many thoughtful persons in the textile industry, especially among those sections of it heavily engaged in the use of manmade fibers, view with deep misgiving the insistence of the Federal Trade Commission that a number of new fibers made of cellulose be identified as rayon. Now, rayon is an excellent fiber with many wonderful qualities as its enormous consumption testifies. But the plain truth is that these new cellulosic fibers are not rayon. It is thus a sad disservice both to the consuming public and the textile industry for the FTC to insist wrongheadedly and mulishly that they be described as rayon.

To support the fact that such fibers as Courtauld's "Corval" and "Topel", and Hartford's "Zantrel" to say nothing of others like American Viscose's "Avril" and American Enka's "Fiber 500", are markedly different in textile functional properties than rayon, a weight of persuasive evidence has been brought forward.

The fact most damaging to the FTC's position is that the new cellulose fibers, when used in fabrics, *perform* differently than rayon. To insist that they be labeled "rayon" will tend to mislead consumers and thus defeat the declared purposes of the Textile Fiber Products Identification Act.

The FTC's position is now being challenged in the federal courts by separate actions brought by Courtaulds and Bigelow-Sanford Carpet Co., parent company of Hartford Fibres. Everyone interested in meaningful fiber identification and the protection of the best interests of consumers as well as the textile industry will sympathize with the plaintiffs in these lawsuits.

A. J. McCallough



World Wide

RUSSIA'S TEXTILE INFLUENCE continues to grow. Latest activity is expected to lead to a new pact with Japanese mills for purchase of 34 million pounds of rayon yarn over a three-year period, starting in 1961. Under present contracts, Russia is buying 5.9 million pounds of rayon filament yarn during 1960. Meanwhile, Singapore reports Russia has been dumping a million pounds of cotton cloth monthly at prices threatening both Japanese and Red Chinese markets.

JAPANESE TEXTILE MACHINERY firms have concluded deals to supply new cotton mills in Cuba and Taiwan. Mitsubishi Shoji is to begin shipping 15,200 Howa Industry spindles to Cuba in a month or two. The mill is expected to be set up on the Northern Coast of Oriente Province. The Taiwan mill is to get 200,000 Japanese spindles and another 100,000 from Swiss and British companies. This would round out Taiwan's 300,000-spindle cotton mill development program.

BRITAIN'S IMPERIAL CHEMICAL plans a vast expansion of ethylene and ethylene glycol production to meet manmade fiber and flexible plastic demand. The new site, on which work will shortly start, is located on the Severn River, in Western England. First stage construction costs have been estimated at five million sterling (\$14 million). This stage will see Imperial Chemical's output of these raw materials rise by 35,000 tons yearly.

Full output is set for 1962 when ICI will be able to turn out 180,000 tons of the chemicals annually. ICI, incidentally, which has spent 100 million sterling (\$280 million) at its Wilton, Yorkshire, plants, is still investing there.

GERMAN FIBER PRODUCERS, working through their Research Institute for Manmade Fibers at Denkendorf, near Stuttgart, plan to step up expenditures to establish new laboratories and machine workshops. The institute has been concentrating on the development of manmade fiber spinning machinery.

NORWEGIAN NYLON FISHING NETS have just about cornered the market. Some 15 plants are operating at full capacity—largely for the herring fishermen—and charging \$14,000-\$18,000 per net.

GERMANY'S CHEMICAL INDUSTRY group has developed a shirt made of synthetic paper;

its fabric uses cellulose not synthetic fibers as a base. The paper-cloth can be dyed and printed, is said to be as strong as "real" cloths and is dirt-repellent and moisture-resistant. The Association of West German Chemical Industries also announced that the new product can be used for women's blouses and other apparel.

FRENCH MANMADE FIBER activity declined last year from the 1958 peak, according to official trade figures. Total manmade fiber output in 1959 was 112,639 tons, against 129,240 in 1958. Exports were estimated at 28,400 tons, against 30,791 in 1958. However, output of the true manmade fibers rose from 23,400 to 30,000 tons in 1959. Demand has been improving steadily since August. Trade sources expect 1960 to be somewhat better than 1959.

DUPONT'S ARGENTINE AFFILIATE, Ducilo, is planning to expand in order to supply nylon tire cord and cellophane. Expansion cost was estimated at \$6 million.

ORLON STAPLE IMPORT LICENSES, to be worth \$600,000, are being opened up to the United States and Canada by the Italian Foreign Trade Ministry. Until now, Orlon import licenses have remained small. The new move is viewed as being within Italy's new liberalized trade policy both for the dollar zone nations and the European Common Market.

EUROPE'S SECOND TRADE ZONE, the Free Trade Area including Britain, Norway, Sweden, Denmark, Australia, Portugal and Switzerland, is forcing two Swedish mills to close down in the near future. The two firms—Hargs Fabriker and its subsidiary Gefle Manufaktur—have informed their 500 workers that they will not be able to compete within the European Free Trade Area. Christer Høglund, manager of Borås Wäverier—leading cotton mill combine—has said: "We must either go all out for modernization or liquidate."

BRITISH MACHINERY MAKERS have won a \$16.8 million contract to construct a cotton mill in Khartoum. Platt Brothers and British Northrop are to furnish the equipment for the Sudanese firm which is jointly financed by the U.K. and the U.S. Operations should start before the end of the year. When at full capacity in 1962, the mill will employ 3,000 and turn out 75 million square yards a year—mostly for the home market.

J. M. Cheatham of Dundee Mills is the new head of the American Cotton Manufacturers Institute. He brings to this challenging assignment, a keen mind, an articulate personality and a deeply felt devotion to the interests of American textiles



John M. Cheatham

Textiles' New Spokesman

By Jerome Campbell

EDITOR, MODERN TEXTILES MAGAZINE

JOHAN M. CHEATHAM chosen this month to be the next president of the American Cotton Manufacturers Institute, is wholeheartedly a textile man. His work as textile manufacturer is his major interest in life, an interest which he interrupts only now and then to play a little golf or do a little bird shooting in the piney woods of his beloved home state of Georgia.

As a textile man, of course, his primary activity is his demanding job as president of thriving, good-sized Dundee Mills in Griffin, Georgia, along with its affiliated companies, Rushton Cotton Mills and Lowell Bleachery South in Griffin and Hartwell Mills in Hartwell and Toccoa in the same state. All told, this group of companies add up to a big operation mus-

tering some 3,000 employees, 105,000 spindles, 3,150 looms and an annual sales volume of more than \$25 million.

But J. M. Cheatham is a man whose absorbing devotion to textiles rises above his own companies and his own job with them; his devotion encompasses the whole industry. It is for this reason that he is happy to become president of ACMI at a time when this vigorous trade group is planning an allout fight to obtain fair treatment in regard to the devastating pressure of low-wage foreign imports, and when it is shaping a new program of expanded usefulness to the entire American textile industry. In a very real sense, Cheatham is a farsighted statesman of the textile industry, a man of broad vision and a determination to turn vision into meaningful accomplishment.

It is a fortunate fact that the high regard the ACMI has demonstrated for Cheatham in selecting him as president is equalled by the high opinion he holds of the Association, its officers, members and staff. A man of considerable experience in the business world outside of textiles—he is, to cite only two of his non-textile activities, a director of the Federal Reserve Bank of Atlanta and a trustee of the Georgia Baptist Foundation—Cheatham has had ample experience to observe the functions and appraise the caliber of other trade associations. His experience convinces him that the American Cotton Manufacturers Institute is rightly regarded as one of the best-run trade groups in the country.

Cheatham especially admires the devotion and willingness to participate in association activities shown by most of its members. He admires their willingness to drop their company's work, and speed to Washington when they are summoned to attend meetings of ACMI committees or testify before legislative committees and administrative departments of the federal government when affairs of vital importance to the

textile industry are being weighed. To serve as president of an organization so well supported and so rich in the devotion of its members, Cheatham considers a great honor. More importantly, he views it as an unparalleled opportunity to lead ACMI to even higher levels of effectiveness as a trade association defending the best interests of American textile manufacturing.

For ACMI in the months ahead, he envisages, in cooperation with its staff and member companies, a program that will bring an increase in membership; a broadening of services to the textile industry in the direction of providing more useful statistics of industry activity; and, if all goes well, perhaps a really effective drive to win greater prosperity for all segments of textile manufacturing by getting started on a promotional program for textile products aimed at increasing consumption.

Will Press for Import Protection

And, of course, of most urgent importance, Cheatham expects to continue the present efforts of ACMI to establish a strong and permanent system of protection for the American textile industry against the inroads of low-wage textile products from abroad. He hopes that, under the leadership of ACMI, the federal government may be persuaded to set up realistic quotas, a sound "rule of reason" as Robert Stevens has termed it, that will protect American textiles while sustaining a healthy level of foreign trade in textile products with the exporting countries of the free world.

Like so many other textile leaders in the South, John McGee Cheatham was born and brought up in an atmosphere saturated with fabric manufacturing. His father, John Henry Cheatham, Sr., is still remembered as one of that remarkable group of textile business geniuses who appeared in the South in the opening decades of this century. A farm boy of exemplary character and business ability, the elder Cheatham was born in Greenwood County, South Carolina. As a young man, he showed great skill at managing and improving cotton mills. In a lifetime of concentrated effort and hard work, marked by an almost uncanny ability to make the right decisions at the right time, he built out of a number of run-down cotton mills the group of companies of which Dundee is the keystone.

Although John M. Cheatham would modestly disclaim the comparison, he is a true son of his father, carrying on his father's work with the same earnestness, although with perhaps a little less of the exacting concentration on minor details of mill operation for which his singleminded father was famous. It was said of John Cheatham, Sr. that although he knew little of the details of fabric manufacture—he was incapable of piecing up an end or starting a loom—he knew at all times the price of a shuttle or 100 pounds of starch. More importantly, he knew how much a mill should sell to make money, and what fabrics to make for profitable sales. Before his time, he was an intensely market-oriented mill operator.

Born in the little town of Easley, S. C. in 1913 when his father was building a reputation for himself in the textile world as manager of Easley Cotton Mills, John M. Cheatham took his first job in a mill at 14 during his vacation from school. After attending Furman University and Georgia Institute of Technology, he went to work for Rushton Cotton Mills full time

in 1933 as a payroll clerk. In 1936, his father sent him to New York to learn something about fabric selling on the staff of Woodward, Baldwin & Co., which was then Dundee's sales agent.

In 1937, he came back to Griffin to join the management staff of Dundee where he has remained since except for service during the war in the Navy. He became president of Dundee and its related companies in 1950 after the sudden death of his father.

Following a line of growth and improvement begun by the elder Cheatham in his lifetime, John M. Cheatham has steered Dundee Mills along the path that most successful textile manufacturing companies have inevitably followed in the past 20 years or so. The emphasis has been upon upgrading of products and modernization of equipment.

Best known for its line of turkish towels and other high quality terry products, Dundee and its related mills produce, along with toweling, a wide range of fabrics including corduroys, birdseye diaper cloths, narrow sheetings, a line of cotton suitings for home sewers, cotton flannels and dobby goods for decorative uses.

As its big, handsomely laid-out showrooms at street level at Sixth Avenue and 41 Street in New York City attest, Dundee is a major factor in terry towels. In this market, it occupies largely a broad spread in the medium to better grade price ranges. Along with its branded and nationally advertised Dundee towels, the company is the acknowledged leader in the production of towel fabrics for the institutional and linen supply industry.

The direction of Dundee Mills is for Cheatham as president a full-time job, commanding most of his time and energies. It is a tribute to the man and a measure of his character that to this exacting job, he has willingly undertaken another, perhaps even more demanding assignment for a year or so—that of president of the American Cotton Manufacturers Institute.

As president of the trade group which speaks virtually for the entire textile industry these days, Cheatham—such is the serious nature of the man—will be wholeheartedly devoted to his duties and unsparing of his personal time and energy. It will mean that, among other sacrifices, he will have to spend a great deal of time away from home on ACMI affairs, and see less of his charming wife, the former Elizabeth Mathis of Americus, Ga., and his four thriving children, John, Jr., Elizabeth, Harvey and Jackson. In effect, he will carry for a year at least the burden of two full-time and exacting jobs. Those who know him are certain that he will be equal to the task.

Russia Places More Orders

Proctor & Schwartz, Inc. has received a Russian order for new worsted card lines, bringing total sales to Russian and Iron Curtain countries to \$2,500,000, the company reported. Previous orders were for worsted card lines, garnett lines and complete blending lines, to be built by Proctor and chemical process equipment ordered through Proctor's affiliate, John Dalglish & Sons, Ltd., Glasgow, Scotland. Proctor has received orders from Poland for a complete line of equipment for producing nonwoven fabrics, including preparatory, web-forming, impregnating, drying and curing ovens, plus an order for a complete blending line for carpet fibers.

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Get in touch with our nearest plant or office and let us quote on your yarn dyeing requirements.

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A DIVISION OF INDIAN HEAD MILLS, INC.

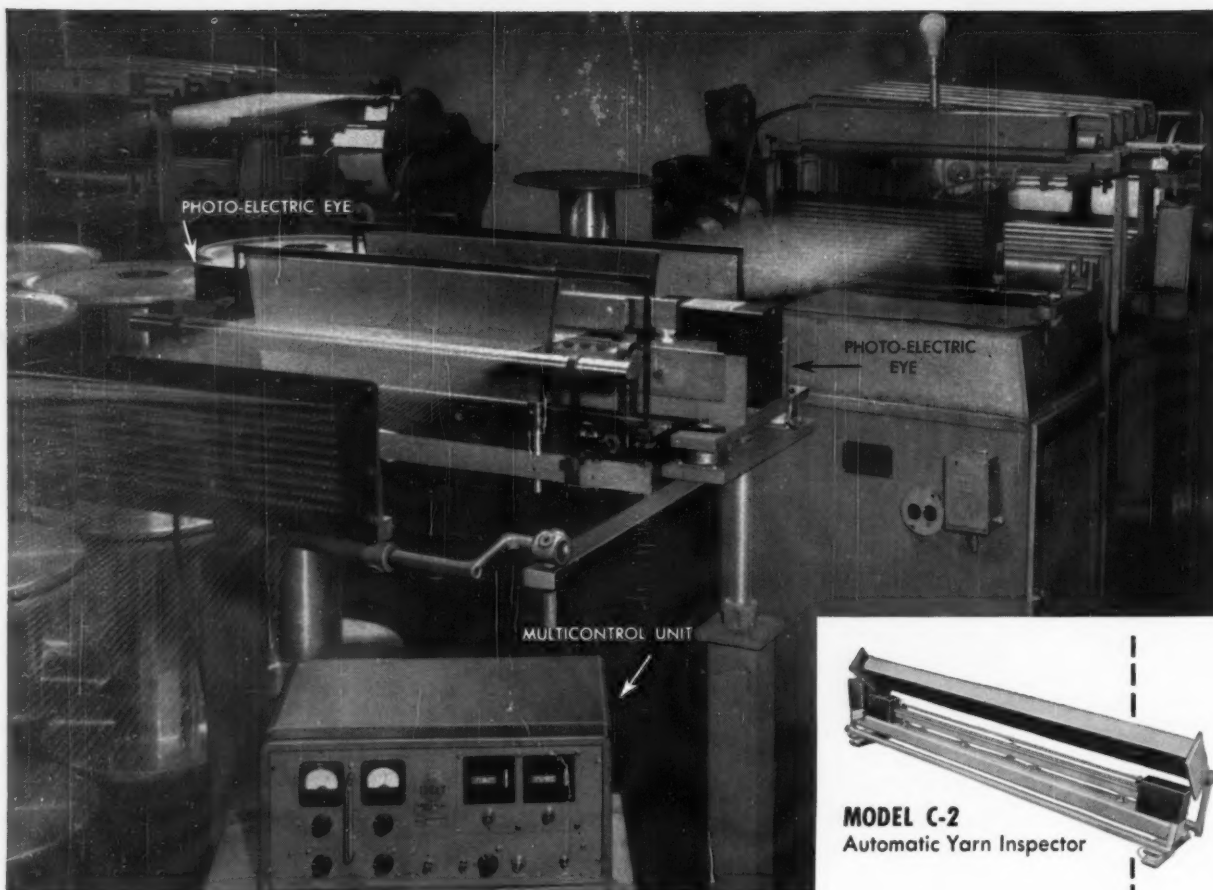
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The Lindly Automatic Yarn Inspector is a high speed, ultra sensitive photo-electric instrument for detecting defects in synthetic yarn warps, such as strip-backs, fluff balls and broken filaments — is in world wide use by yarn producers, warp knitters and weavers.

It can be set up to count defects, or to stop the warper for defect removal, or to do both — automatically — and offers the following advantages: —

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3. Increased production due to warper speedup.
4. Fewer knitting machine or loom stops caused by yarn defects.

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ATLANTIC CITY, U.S.A.
MAY 22-27, 1960

FOSTER MACHINE COMPANY

Electronics Sales Division, Department TW-3

Westfield, Massachusetts, U. S. A.

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A study of

Modern filling preparation systems

By Helmut Deussen, R. A. Moore & G. I. Kimball

AMERICAN SCHLAFHORST CO.

THE NECESSITY for cost reduction in the more and more competitive field of textile manufacturing has created an ever increasing demand for cost reduction machinery. One of the areas where good cost reduction machinery is available is in filling preparation. The elimination of battery hands in the weave room alone permits such large savings that they cannot be overlooked by progressive mill management.

There are two basic methods available with which these savings can be realized. One method is to carry the quilling operation into the weave room and produce the filling directly on the loom. This process is known as *loom winding*. The other method is the combination of efficient *high speed quilling* with *automatic filling magazines* on the loom.

The data compiled here is for the purpose of comparing the results of the two systems on a straight dollar for dollar basis and of providing a guide for determining future purchases of filling preparation equipment. Any comparison or evaluation of these two methods should not stop at the conventional measure of labor savings versus the proposed investment; but it should include all costs entering into the cost per pound, including in addition to labor, capital investment, depreciation, interest, and income taxes (all of which are included in this comparison).

The figures used in the following comparisons are based on actual mill operations. Data actually accumulated in various textile mills—not theoretical data—were used as a basis for the figures in the comparisons which will be shown for the following operation:

Size of Mill:	1,200 Draper Looms
Yarn Count Range:	8's to 40's
Average Yarn Count:	15's
Type of Goods:	Carded Cotton or Spun Synthetics
Annual Consumption of Filling Yarns:	7,770,000 lbs.
Working Hours per Week:	120

Fifteen different combinations of filling preparation methods are pointed out and discussed as to their economic advantages or disadvantages. As in any comparison, we must have a common basis, which in this case comprises the following equipment:

This study, the authors wish to point out, is based on an actual mill installation serving 100 looms equipped with automatic filling magazines and another 100 looms equipped with loom winders. The figures thus obtained and supplemented by figures from other, larger automatic filling magazine and loom winding installations have been projected to illustrate a typical mill operation of 1,200 Draper looms.

The projection has actually been made by the mill in question, and studies from an automatic filling magazine installation of 280 looms and those of large loom winder installations have also been brought into the analysis.

Spooling on 2.2 pound cheeses,
Low Speed in-line Quilling stacking bobbins into boxes,
Conventional X-2 Draper Looms with rotary battery plugged by hand at more than 1,000 bobbins per hour. Weavers' and Fixers' assignments are among the highest in the industry.

The objective of this study is to determine if any phase of the above operational layout should be replaced in order to obtain a lower overall cost per pound. Three variable factors, as shown below, are the basis of the fifteen combinations.

1. Three types of supply packages are being considered:
 - the 2.2 pound cheese,
 - the 4.5 pound cone,
 - the 6 pound cone,since the net weight of the supply package has a de-

cisive bearing on labor costs in the subsequent operations.

- Two types of quilling have been tested:
Conventional Quilling at speeds of approximately 5,000 rpm and
High Speed Quilling at speeds between 10,000 and 12,000 rpm.
- The weaving sections show three alternates:
Standard Loom Battery
Automatic Filling Magazine
Loom Winders.

Table I is the key to the evaluation and serves as a flow chart of the various filling preparation methods.

Table II illustrates, in condensed form, the labor cost per pound from the various methods and the expected return on the investment as measured against the labor savings *only*. The labor costs represent the sum of direct and indirect labor in winding, quilling, and weaving, not counting fringe benefits. On the left side of each column, in diagonal columns, the overall labor cost is plotted in dollars per pound, and on the right side of each column, in solid columns, the investment return in years is projected. It is the practice in most textile organizations to make purchase decisions on the best combination of cost per pound and investment return, that is, on the lowest cost per pound in order to remain competitive, and on a fast return in order to recover invested capital for other cost reducing investments.

A close study of the columns of this graph shows that the comparison proves Case C-4 to be the most economical method, giving a cost of .0995 dollars per pound and a return of 5.5 years. Referring to Table I, this Case C-4 is composed of High Speed Quilling, supplied with 6 pound cones, supplying the Automatic Filling Magazine with tip bunched filling. There are several other cases showing a substantial reduction in labor cost per pound, but their payoff period makes

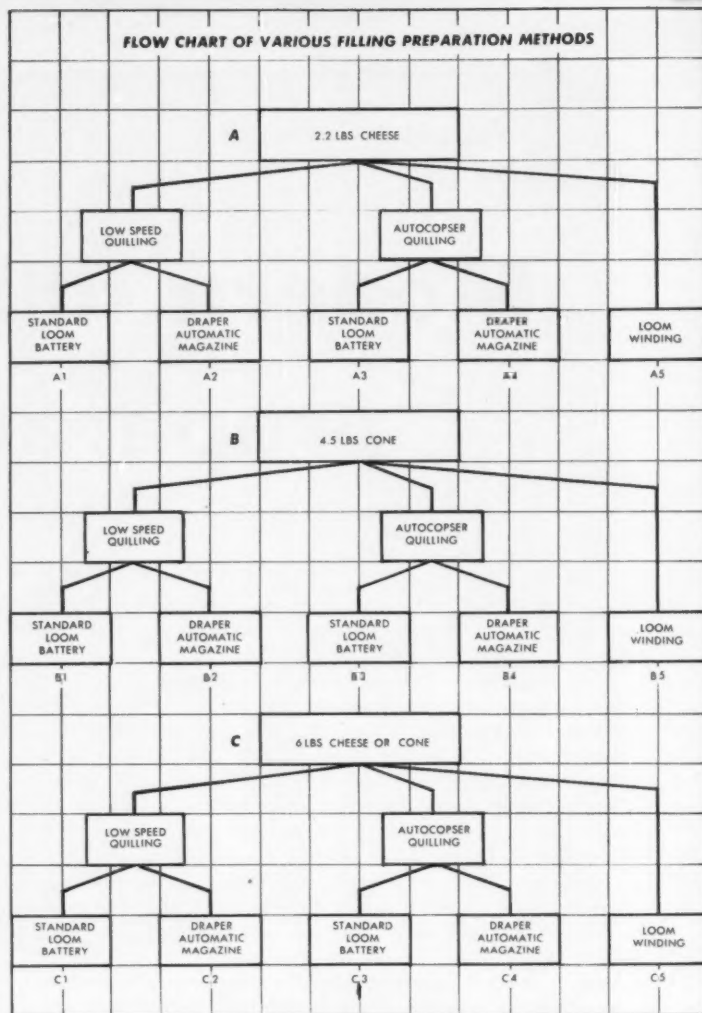
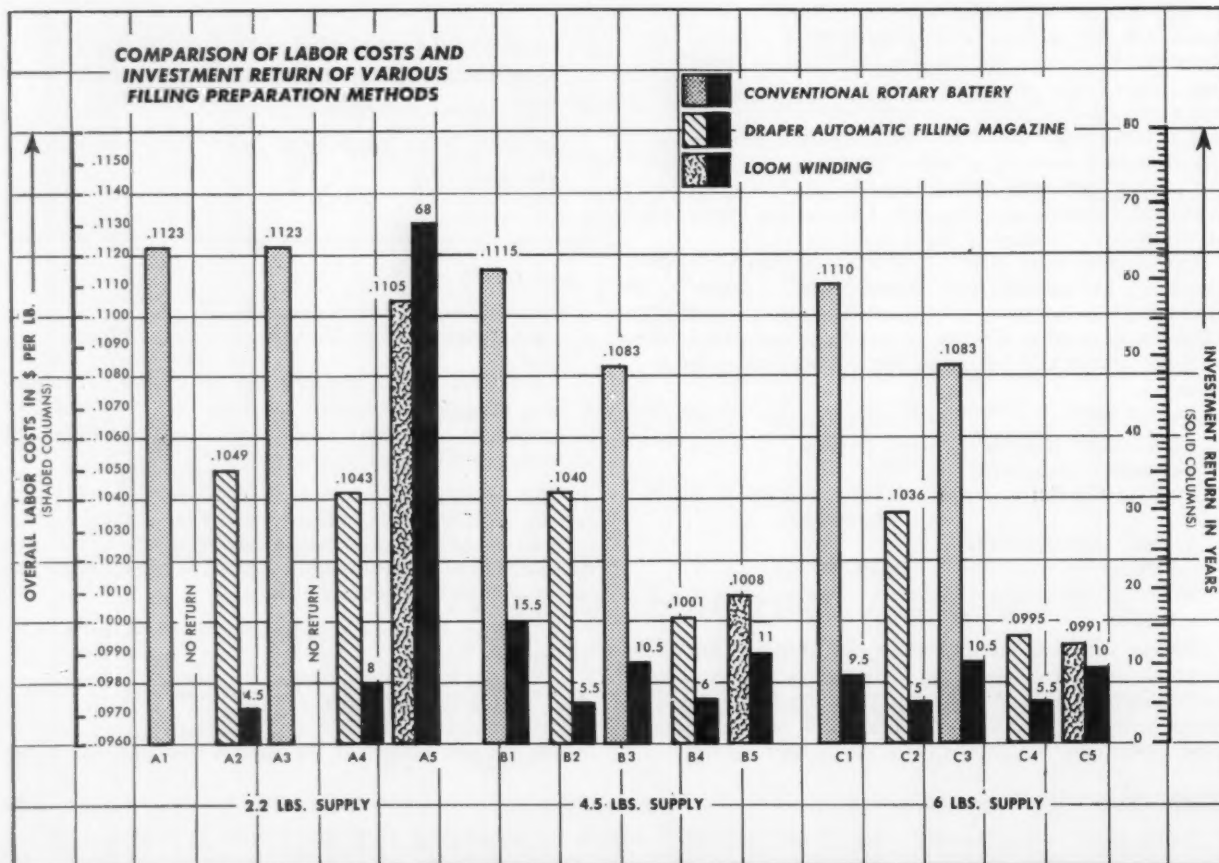


Table II

Table I



the investment much less attractive or entirely unacceptable.

Extended investigations into other areas where coarser and finer counts are being processed indicate that cost per pound varies between Loom Winding and High Speed Quilling plus Automatic Filling Magazines when yarn counts change. On counts finer than 15's, cost per pound is less when High Speed Quilling plus Automatic Filling Magazines is used than by other methods, while on coarse yarn counts of 10's and below, the cost per pound of High Speed Quilling plus Automatic Filling Magazines is slightly higher, but the capital investment is in most instances recovered much faster than by other methods. Also, it is important to have equipment which will give the lowest total cost per pound on a wide range of counts because market demands change constantly and the lowest cost per pound under most market requirements is necessary to meet competitive prices and still make profits.

So far in cost per pound, we have compared labor cost only; however, it is evident that looking at our overall production costs, there are other important items such as capital investment, depreciation, interest, and income taxes. With larger cash investments for textile machinery, these items of expense have become a greater portion of production costs. Therefore, it is now necessary to get the lowest total cost including

capital investment and depreciation, interest, and income taxes before deciding the production method to be used. In fact, the cost other than labor will more than offset the labor savings in some cases, so that the capital investment will never fully be recovered from savings produced by the new machinery.

Weave Room Efficiency

As used in this example, depreciation with a write-off period of 15 years is figured according to the double declining balance method which is one of the most commonly used under present income tax laws. In order to depreciate the investment completely, the double declining balance method is changed in the 9th year to the straight-line depreciation method which also is a widely used practice. As stated above, depreciation definitely is a cost item even though it is not a cash item.

The interest rate is set at 6% per annum which is in line with the present prime discount rate. Whether a company borrows money from a lending agency and pays interest or whether the company uses its own funds and loses the interest it is earning, money has a cost. The interest rate which we are using is the lowest normally available even in the best credit situations. If a given company's interest cost is higher, then greater weight should be given to this item.

Income tax is taken at a total of 55% which includes state income tax of 6% and Federal income tax of 52%.

As Table III clearly shows, the total operating cost over 15 years is considerably lower on the combination of Autocopser High Speed Quilling and Draper Automatic Filling Magazine than it is on Loom Winding. Some mills may replace these declining curves by an average levelled cost. (This procedure is indicated by dotted lines.) It may be mentioned here that in the 16th year all lines dip to a certain extent, then level off to show continuously the same relative cost. However, in view of the rapid technological advance of our industry, any investment should be considered for cost and profit in the first five to ten years for reasons of obsolescence of both product and machinery.

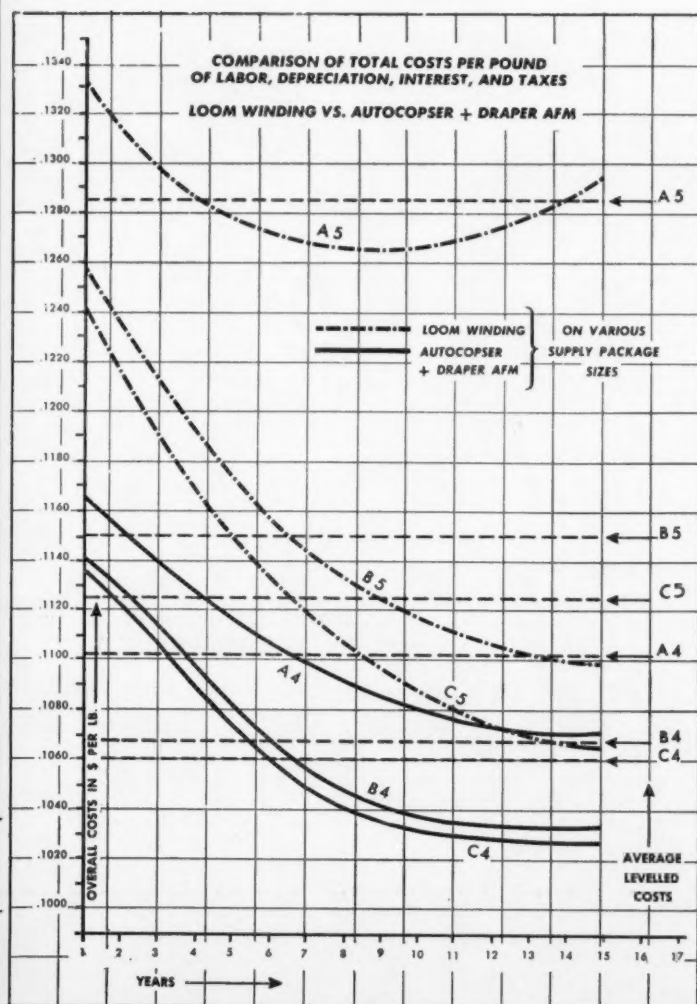
How Depreciation Is Figured

Table IV represents the summary of the final tabulation of capital gain or capital loss when operating 6 proposed systems for a period of 15 years. This factor, capital gained or lost, should be the final criterion in measuring an investment. It is apparent that an installation of Draper Automatic Filling Magazines plus Autocopser High Speed Quilling accomplishes this goal, while the installation of Loom Winders shows losses in the capital invested. Unless an investment produces enough cash to equal the original capital outlay, a mill cannot afford the savings which the investment makes.

In the graphs discussed above, we have been taking into account the important cost factors measured and forecast with reasonable accuracy. An indirect cost factor of equal importance, however, is the influence of the obtained weave room efficiency on total production costs through increase or decrease of the annual overhead costs. When making process changes of this scope, it should be ascertained that weave room efficiency is either maintained or, if possible, improved.

The complicity of a Loom with a Loom Winder attachment indicates that a decrease in Loom pro-

Table III



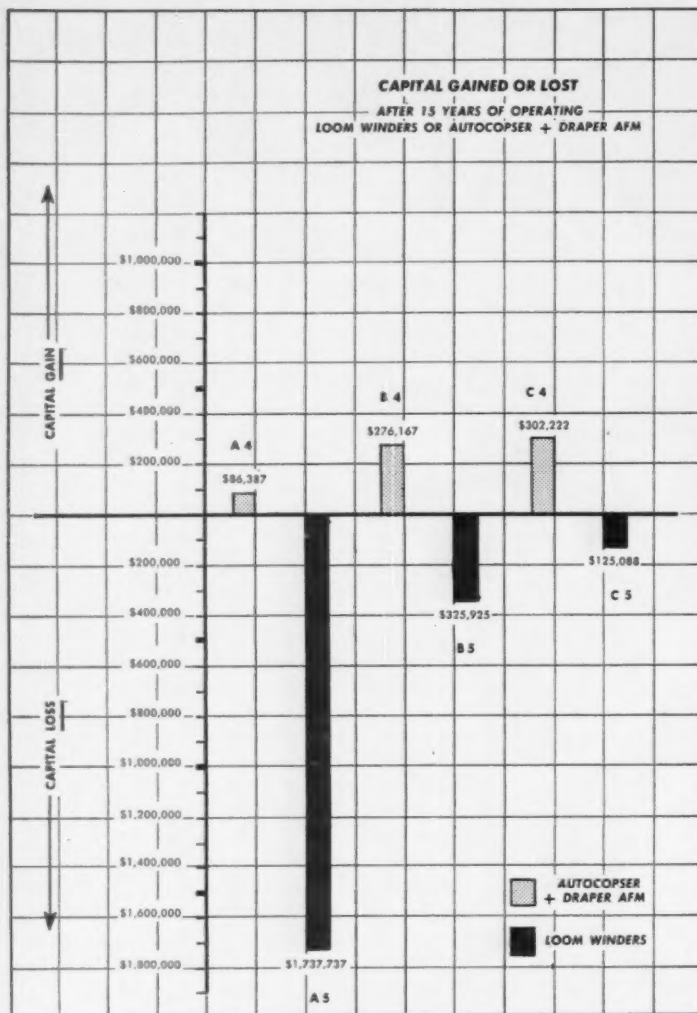


Table IV

duction should normally be expected because of higher interference with the weaver and the accumulative possibilities of loom stoppages. In fact, a study showed a decrease in loom efficiency of well operated weave rooms running plain goods to be approximately 1%. In small mills or ones on fancy operations, this loss in production can easily be doubled. On Automatic Filling Magazines, there is no interference with the weaver, and the human element of the battery filler is replaced by a precision built and automatic filling supply.

Table V shows the impact which a drop or a rise of 1% in weave room efficiency can have on the cost of the average mill. (For the plant in this evaluation, 1% efficiency loss equals a loss of \$15,800 per year on 1,200 looms.)

SUMMARY

Draper Automatic Filling Magazines supplied with filling from Autocopser High Speed Quillers equal or cut the labor cost per pound as compared to Loom Winders and in most instances return the investment almost twice as fast. A comprehensive evaluation should not stop with labor costs only but should also compare the total operating cost including interest on capital investment, depreciation of equipment, interest and income taxes. These total costs when figured correctly show the capital gained or lost after a given

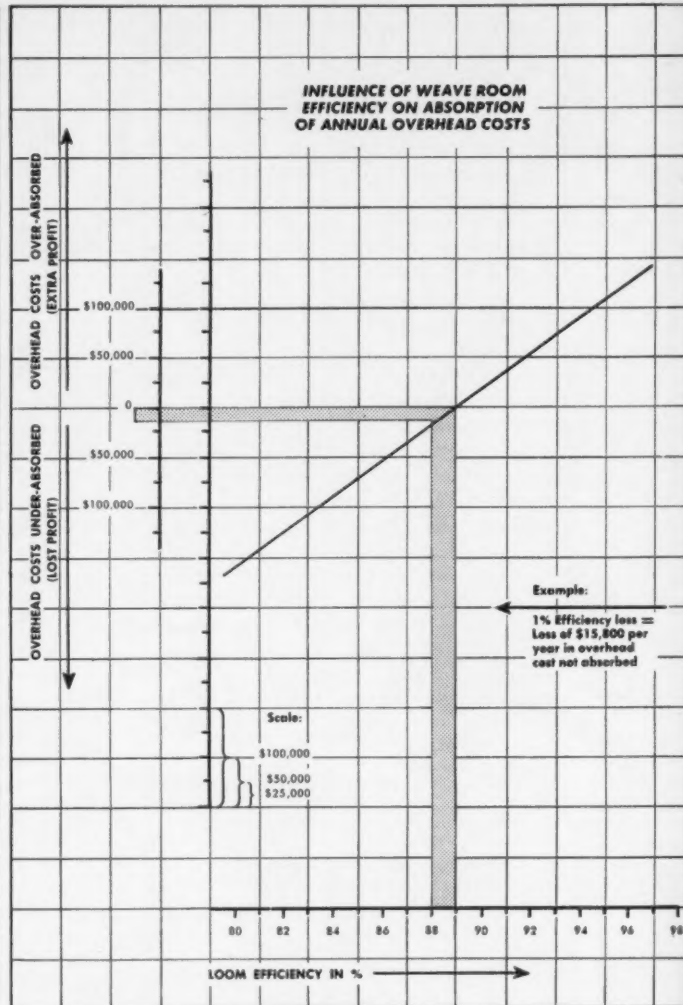


Table V

time of operation. Loom Winders show substantial losses while Draper Automatic Filling Magazines plus Autocopser High Speed Quillers produce cash for new investments. Because the absorption of weave room overhead costs varies directly with its productivity, an additional cost factor, which must also be considered, is the maintenance and improvement of weave room efficiency.

Burlington-Lees Merger

A plan whereby Burlington Industries, would take over James Lees and Sons Co. will be submitted to Lees' stockholders for approval. If approved, Lees' business and operations will continue as a wholly-owned subsidiary of Burlington under the name of James Lees and Sons Co., with Lees' present management and personnel and in Lees' present locations.

Lees, a 113-year old company, produces a wide range of wool and manmade fiber carpets and rugs. It has plants in Virginia, Georgia and North Carolina with warehouses and sales offices in key distribution centers across the country. Joseph L. Eastwick, Lees' president, would continue as the principal executive officer of Lees. It is contemplated that he and Horace C. Jones, both directors of Lees, would ultimately be nominated to serve on the board of directors of Burlington.

DYEING and FINISHING SECTION



New
Compartment Washer

New Method of
Applying
Pneumatic Pressure to
Printing Machine
Mandrels

New Concept
of
Automatic Cutting
and Doffing

Latest
High-Speed Tenter
with
Newly Engineered Clips

Latest
Cylinder Dryer

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BLEACHING
PRINTING
SPECIAL
PROCESSING

How to dye

DACRON-WOOL

piece goods

By C. T. Worthen
SANDOZ, INC.

DACRON-WOOL piece goods are being dyed in the main by two methods: (1) In the beck using a carrier, usually by the two bath method. (2) Under pressure without carrier by either one or two bath method. Both methods have their advantages, but where dyeing at elevated pressures and temperatures is feasible, lower costs generally result. (Dacron is a trademark for polyester fiber manufactured by the Du Pont Co.)

The following are recommended procedures when beck dyeing with a carrier. Two types of dyeing assistants are in general use: (1) Those based on o-phenylphenol; (2) Those based on the chlorobenzenes. Each type has its disadvantages. The phenol compounds if not completely removed from the fiber result in noticeable degradation in light fastness. Chlorobenzene compounds are to a certain extent toxic, and if allowed to drip on the goods in concentrated form can cause spots. Both types are reasonably efficient and relatively economical.

Selection of disperse dyestuffs for Dacron-wool fabrics is governed by the following factors: (1) Acceptable fastness on Dacron to light, perspiration, crocking, hot wet pressing, sublimation, and solvent bleeding. (2) Stability to dyebath conditions at the boil or under pressure. (3) Minimum stain on the wool portion of the fabric.

Selection of dyestuffs for the wool portion of the fabric: (1) Acceptable fastness to the standard requirements for the fabric in question. (2) Ease of application with a minimum of care. (3) Stability to reduction, especially under pressure.

Womenswear Fabrics

Light and fairly bright shades may be dyed as follows: (1) Two bath procedure in the beck using a carrier for the Dacron. (2) One bath procedure in the beck using a carrier where good control is present. (3) Two bath method with the Dacron dyed under pressure and the wool at or near the boil. (4) Two bath method with the Dacron dyed as in (3) and the wool subsequently dyed in the beck. (5) One bath method under pressure for shades such as beige, tan, grey, etc., where brightness of shade is not essential.

Heavy shades for women's wear may, of course, be dyed by any of the above recommendations, but are economically processed using one bath under pressure.

It should be remembered that the stain on wool by disperse dyes is much greater under pressure than is the case where dyeing is carried out at or near the

boil in the presence of a carrier. Two factors influence the stain on wool. First, of course, is dyestuff selection; second, the pH of the dye bath. In general, the lower the pH, the greater is the stain on wool. Most of the suitable disperse dyes are stable under pressure at a pH of 6.0-6.5. A lower pH is frequently advisable, but a higher one is not.

Menswear Fabrics

The preceding statements apply to menswear fabrics as well. When the construction of the fabric allows, the one bath method under pressure offers ease of application, economy, and good duplication of shade from lot to lot.

Selection of Wool Dyestuffs

Neutral dyeing metalized and selected milling colors are used where cost permits. For dark shades top chrome dyes are economical and, of course, meet all fastness requirements. Good results have been obtained by dyeing top chrome combinations as near to the optimum pH as feasible. It has been observed that the addition of sodium bichromate tends to increase the satin on the wool by causing additional dyeing of the fiber by the disperse colors remaining in the bath. Usually this is not enough to affect adversely the fastness of dark shades.

Top chrome dyes with the one bath method under pressure appear to work very well. It is necessary that the pH be low enough to obtain good exhaustion in order to prevent deposition of a loose chrome lake on the surface of the fabric with the resultant poor fastness to perspiration and crocking.

Next we come to recommended procedure for pressure dyeing:

(1) Neutral metalized and milling colors: Add well dispersed Dacron colors and well dissolved wool dyestuffs to bath containing indicated exhausting agent at 120°F. Straining is always advisable. Raise to 200°F. in 45 minutes; Run 10-15 minutes; Raise to 245°F. in 30 minutes; Run 1-½ hours and sample.

(2) Chrome colors. As above except 30 minutes additional time is required for chroming. This may be accomplished by shutting off the steam and running in the cooling bath or by cooling to 205°F. before adding the sodium bichromate and maintaining this temperature for the proper length of time.

The addition to the dyebath of 2 gm/L of formaldehyde appears to help retain to a great degree the characteristic qualities of the wool. Degradation is kept at a minimum. ■

PART OF THE PACKAGE

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Improved Wool Shrinkproofing

Introduced in America two years ago, Geigy's chemical compound, Chloregeal D is an auxiliary for shrinkproofing wool by chlorination in an acid bath. According to Geigy, Chloregeal D has gained acceptance by mills making knitting yarns, knit goods, blankets and woven fabrics.

Chloregeal D, is a specific compound which slows down and controls the reaction of chlorine to wool. One drawback to the chlorination of wool is the possibility of unlevel chlorination due to the exceptionally rapid reaction of the chlorination. Because of this disadvantage, chlorination has usually been restricted to low-grade materials.

With Chloregeal D, the typical lengthy control process is eliminated. In a pre-treatment which takes an average of only ten minutes, the Chloregeal D is added to the acid bath. Chlorination proceeds immediately afterward. Chloregeal D enables the dyer to obtain level chlorination of wool with conventional dyehouse equipment at almost any stage of manufacture, Geigy states.

Because of its action in promoting even chlorination, the use of the Chloregeal D process is said to give more assurance of subsequent level dyeing with a minimum of special precautions usually associated

with dyeing unchlorinated goods.

According to a Geigy spokesman, tests and actual work completed so far on a wide variety of woollen materials indicate that washable woollens produced by this process are highly serviceable without loss of esthetic qualities.

Geigy sums up the advantages of Chloregeal D as an adjunct to chlorination, as follows: washability insurance, for high quality as well as low-grade materials; ease of application; elimination of the pre-chlorination, post-carbonizing step by neutralizing; less yellowing; minimum strength loss; subsequent level dyeing with good shade matching.

Geigy has prepared a special manual for dyers, "Chloregeal D—Recipes for Chlorination." The company is also prepared to conduct mill demonstrations and tests for shrinkproofing and dyeing for firms interested in the process.

The Chloregeal D booklet details chlorination procedures, giving step-by-step treatments, times for each, and percentages of chemicals to be used, liquor ratios and temperatures. Recipes cover yarn in hanks, slubbing, cheeses, blankets, knitwear and piece goods for printing.

For free copies write the editors.

Improved Extractor-Dryer

Turbo Machine Co. has developed a new recirculating-type extractor dryer for package yarns. The new machine is said to speed up the extracting-drying operation while requiring half the space and costing 50% less than other recirculating-type models. The Turbo model features a stainless steel pressure-type kier with precision balance cover. The machine's exact processing time depends on many variables, such as type of tub, density of package, count of yarn, and class of colors or dyestuffs.

The equipment can be installed rapidly at low cost, and there is little maintenance. No compressed air is required. There are no air-oil filters, or conventional air filters. The machine has a silent-operating, non-overloading blower with automatic control of air supply temperature to the yarn, and an automatic temperature recorder for air exhaust from the yarn. It has a pressure gauge to show resistance to flow. Air flow directional control is either manual or automatic. The machine shuts off automatically at the end of each cycle. Four mill installations have been made, Turbo reports, and other machines are being built. *For further information write the editors.*

New Polyethylene Resins

Eastman Chemical Products has introduced three new low molecular weight polyethylene resins designed to fit prospective uses in rubber, coatings, polishes, textile finishes, plastic molding and extrusion compounds. The new resins—Epolene LVE (low viscosity emulsifiable), HDE (high density, emulsifiable), and HD (high density), are added to Eastman's already existing line of Epolene compounds. Eastman's facilities at Longview, Texas, have been expanded to permit early availability of the new products on an industrial scale. *For further information write the editors.*

New Pigment Dept.

In line with the increasing emphasis and importance of pigment manufacture and sales, General

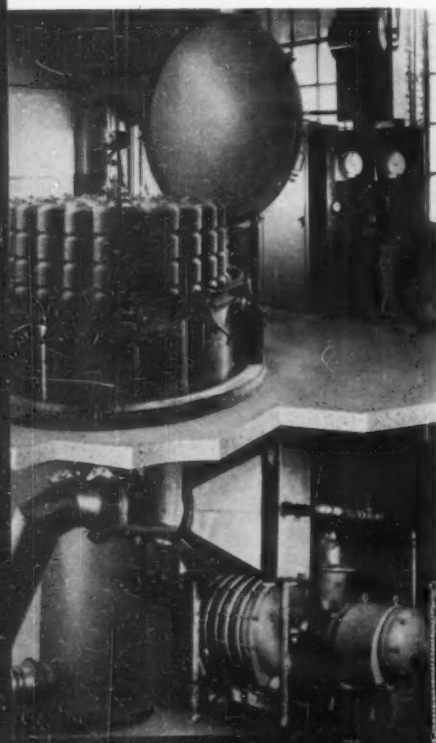
Aniline & Film Corp., has established a new and separate Pigment Department. Dr. Robert E. Brouillard is sales manager—pigments of the new program. Other appointments included: Dr. Leon Katz, product manager—pigments; Maurice L. McCord, western regional manager; John D. Shaw, eastern regional manager; Theodore B. Smock, mid-western regional manager, and Emil A. Wich, manager technical services.

New Fiber-Reactive Dyes

Verona Dyestuffs has introduced two representatives of a new range of fiber reactive dyes. They are tradenamed Verofix Brilliant Blue 3GL and Verofix Yellow 4G. Advantages of the new dyes are said to be elimination of severe washdown and accompanying staining, and lightfastness not affected by resin aftertreatment. Four more dyestuffs of the new type are expected to be announced in the near future. *For further information write the editors.*

New Procynyl Dyestuffs

Reactions of customers to the new Procynyl reactive disperse dyestuffs as reported by Arnold, Hoffman indicate considerable interest in their use for production of fast to wash shades on nylon. Current Procynyl range, recently introduced to the U. S. market by Arnold, Hoffman, includes Yellow GS, Orange GS, Scarlet GS, and Blue RS. The new dyes for nylon were originated by the research laboratories of Imperial Chemical Industries. *For further information write the editors.*



Turbo Extractor Dryer
for Package Yarns

6 Determining the Machine Assignment

By Thomas F. O'Connor

IN THE SAMPLE PROBLEM of Article 5, the assignment of machines to operators had been predetermined, by means not stated, and the problem was to determine the standard efficiency, given the necessary Time Study information. In many cases the problem is reversed, as for example in the following, where the efficiency has to be calculated before the assignment can be set.

Data

$t = 10$; $t_1 = 0$; $t_2 = 8$; $t_3 = 1$; $t_4 + i_4 = 4$, all in minutes per machine running hour (mrh).

The machines are looms producing cloth of 50 picks per inch on three shifts. There are 60 of these looms, and currently 12 loom tenders per shift, 5 looms being assigned to each tender. Tenders can be drafted from less urgent work if necessary. The loom speed is 140 picks/min.

Problem

How should the looms be operated to meet an order for 23400 yards of this material per week?

Solution

1. Find what operating efficiency is required, as follows.

On the basis of 120 hours per week, yards per hour 195.

With 60 looms working, yards per loom hour	3.25
--	------

Picks per loom per hour $3.25 \times 36 \times 50$

$$\text{Required efficiency} = \frac{5850}{8400} = 0.70 \text{ or } 70\% \text{ ap-}$$

proximately.

2. Check to find out if 70% efficiency is possible. From Article 5, $p = 0.3215$, and $F = 0.94$ approximately. First check $N = 1$, because if the required efficiency cannot be obtained here it is no use looking further.

At $N = 1$, from the Tables (interpolating), $A = 0.757$ $D = A/F = 0.757/0.94 = 0.805$. $E = D/N = 0.805/1 = 0.805$, which is greater than needed, so the answer is—yes, the required efficiency can be had.

3. Since one operator to a machine is an expensive way to run looms of this sort, other assignments will now be investigated. There is no need to detail the calculations which have already been demonstrated.

The results are shown in Table IV.

TABLE IV

p 0.3215

F 0.94

Trial	N	1	2	3	4	5
	A	0.757	1.429	1.990	2.430	2.736
	D	0.805	1.520	2.120	2.582	2.905
	E	0.805	0.760	0.707	0.645	0.581
	B	0.255	0.481	0.671	0.820	0.920

Now it is seen that $N = 3$ would give the required efficiency with a little to spare. To assign only 3 looms to an operator instead of 5 would call for the services of 8 additional workers—20 instead of the present 12 would be needed to service the looms.

Solution, part 2—Another Possibility

So far, the work which can be done while the loom is running has all been put in category t_3 , that is it is assumed to be non-deferrable. At this stage, suppose it occurs to someone that at least part of this work, the preparatory part for instance, does not necessarily have to have priority. If an adjustment is made by transferring part of t_3 to category t_1 , how will this affect matters?

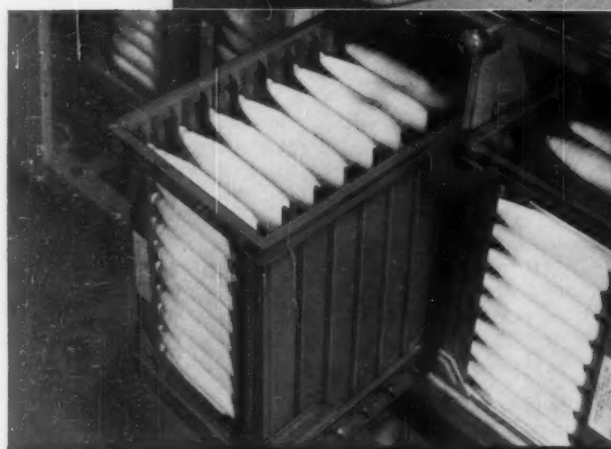
It is not hard to find out. For a start write $t_1 = 1$,
(Continued on Page 48)

Table V

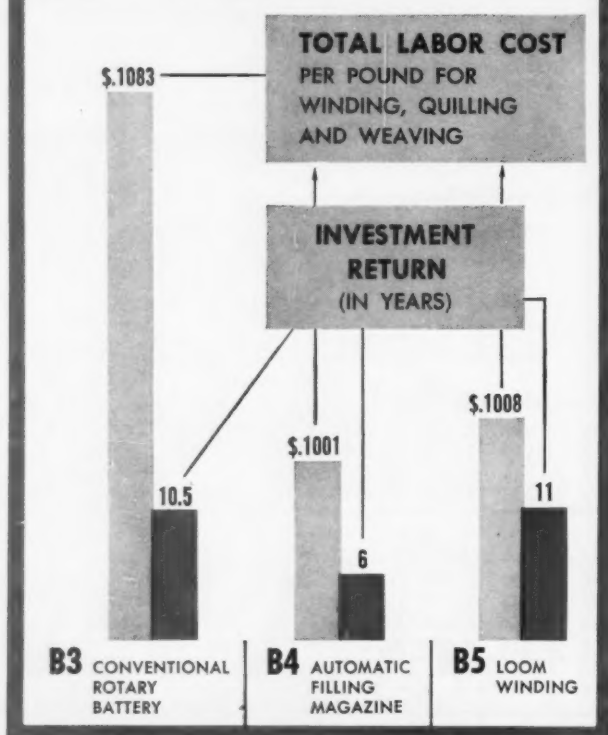
How the proportions of priority and non-priority run time work affect the loom efficiency

$$t = 10; t_1 = 1; t_2 + t_3 = 4; t_1 + t_2 = 4.$$

t_1	0	1	2	3	4	5	6	7	8
t_2	8	7	6	5	4	3	2	1	0
p	0.3215	0.2985	0.2760	0.2540	0.2355	0.2130	0.1936	0.1747	0.1563
F	0.9400	0.9590	0.9760	0.9940	1.0110	1.0300	1.0460	1.0630	1.0770
<u>$N = 3$</u>									
A	1.990	2.056	2.120	2.185	2.242	2.310	2.373	2.432	2.493
D	2.120	2.140	2.175	2.200	2.242	2.242	2.270	2.285	2.315
E	0.707	0.713	0.725	0.733	0.740	0.747	0.760	0.762	0.772
B	0.671	0.678	0.689	0.697	0.703	0.711	0.720	0.725	0.734
<u>$N = 4$</u>									
A	2.430	2.530	2.634	2.738	2.828	2.940	3.042	3.139	3.237
D	2.582	2.640	2.700	2.750	2.800	2.855	2.910	2.950	3.005
E	0.645	0.660	0.675	0.688	0.700	0.714	0.728	0.738	0.750
B	0.620	0.636	0.655	0.671	0.686	0.904	0.921	0.934	0.951
<u>$N = 5$</u>									
A	2.736	2.879		Beyond this point, workload exceeds 95%, which is the limit of feasibility.					
D	2.905	2.995							
E	0.581	0.599							
B	0.920	0.949							



ONE OF MANY EXAMPLES: 15's average count, using 4.5 lbs. cone



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FILLING
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INCREASE *loom performance*

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REDUCE *mill costs*

The Draper Automatic Filling Magazine, brings new automation to your weave room . . . reduces filling handling to a minimum.

Lower labor costs, more continuous loom operation, cleaner yarns and fewer cloth seconds are direct advantages gained from the use of this magazine.

Your Draper representative will be glad to show you the many benefits that can be obtained from the Draper Automatic Filling Magazine.



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Record manmade fiber output

U.S. production of manmade fibers in 1959 reached a new high of 1,961,700,000 pounds, an increase of 21% over the 1,616,200,000 pounds turned out in 1958, according to the *Textile Organon*, statistical bulletin of the Textile Economics Bureau, Inc. The previous record production of 1,765,600,000 pounds was set in 1957. All categories of fiber showed increases in 1959 over 1958.

Preliminary data on world production of rayon and acetate last year indicate that the global output of 5,500,000,000 pounds was 10% greater than the 4,994,000,000 pounds of 1958 and also was a new record, exceeding the previous high of 5,450,000,000 pounds turned out in 1957.

which was 32% greater than the 1958 output of 490,500,000 pounds. Within this category, filament yarn and monofilaments produced totaled 413,400,000 pounds, an increase of 29% over the 320,000,000 pounds of the previous twelve month period. Non-cellulosic staple and tow production came to 233,100,000 pounds, thus showing a 37% increase over the 170,500,000 pounds of 1958.

The 1959 output of textile glass fiber at 147,400,000 pounds also was at a new record level, being 42% over the 103,800,000 pounds produced in the previous year.

The *Organon* notes that U.S. consumption of rayon and acetate in 1959 amounted to 1,252,000,000 pounds,

U. S. Manmade Fiber Production *

(in millions of pounds)

	1957	1958	1959
RAYON			
Regular tenacity filament yarn	165.6	148.6	175.9
high tenacity filament yarn	340.8	264.5	332.2
staple fiber and tow	371.2	324.2	359.1
ACETATE			
Filament yarn	207.9	222.6	229.6
Staple fiber and tow	53.9	62.0	71.0
NON-CELLULOSIC**			
Filament yarn	335.1	320.0	413.4
Staple fiber and tow	180.6	170.5	233.1
TEXTILE GLASS FIBERS			
TOTAL MANMADE FIBERS AND YARNS	110.5	103.8	147.4
	1,765.6	1,616.2	1,961.7

* Data in this tabulation is derived from the February 1960 issue of the "Textile Organon", bulletin of the Textile Economics Bureau, Inc.

** This classification is sometimes referred to as the "newer" synthetics or the "true" synthetics to distinguish them from rayon and acetate which are made from cellulose. It includes the nylons, the acrylics, the polyesters, the olefins and saran fibers as well as others.

United States production of rayon and acetate last year amounted to 1,167,800,000 pounds and showed a gain of 14% over the 1958 total of 1,021,900,000 pounds. The output of acetate filament yarn at 229,600,000 pounds showed a gain of 3 per cent compared with the previous year, while "textile" acetate staple + tow (estimated) at 71,000,000 pounds was 15% over its 1958 level.

High tenacity rayon yarn production last year amounted to 332,200,000 pounds and was 26% over the previous year, while output of regular and intermediate tenacity rayon yarn and monofilaments at 175,900,000 pounds showed an 18% increase. Rayon staple and tow production amounted to 359,100,000 pounds and was up 11% over 1958.

Non-cellulosic manmade fiber production reached a new all-time level of 646,500,000 pounds last year,

a 12% increase over 1958. The 1959 consumption total is made up of producers' domestic shipments of 1,136,500,000 pounds (up 10%) and cellulosic fiber imports of 115,500,000 pounds (up 37%), the latter being the largest annual total on record except for 1955.

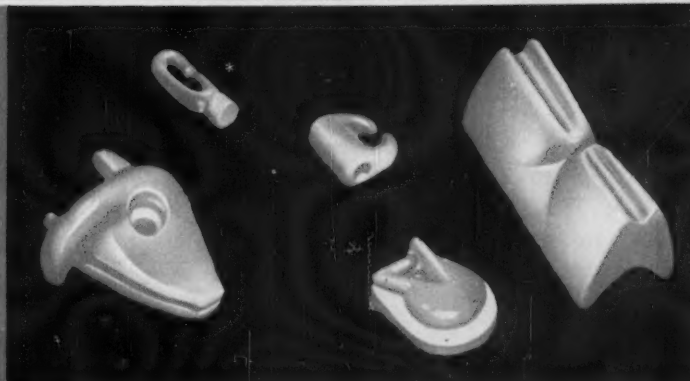
Non-Cellulosics Breakdown

United States producers' nylon shipments to the domestic market last year totaled 355,900,000 pounds, while acrylic and modacrylic staple and tow shipments were 120,800,000 pounds. All other non-cellulosic manmade fiber shipments amounted to 108,400,000 pounds, bringing the total domestic non-cellulosic fiber shipments to 585,100,000 pounds or 25% more than 1958. Producers' total exports of the non-cellulosic fibers at 42,200,000 pounds last year increased 76% over the 1958 total of 24,000,000 pounds. ■

MACHINERY and EQUIPMENT SECTION

MITCHELL-BISSELL THREAD GUIDES

*For Every Textile Service
... For More Than 70 Years*



Above—"BLUE SATIN FINISH" PORCELAIN GUIDES

An exclusive development of Mitchell-Bissell—guides with this finish are more resistant to thread wear than any glazed porcelain guides ever offered the industry. "Blue Satin Finish" Guides, instead of being shiny and glass-like, have a surface of thousands of small rounded grains closely packed together. Reduced wear and longer guide life result because, by breaking the continuity of contact between yarn and guide, friction is reduced. * U. S. Pat. No. 2,152,134.

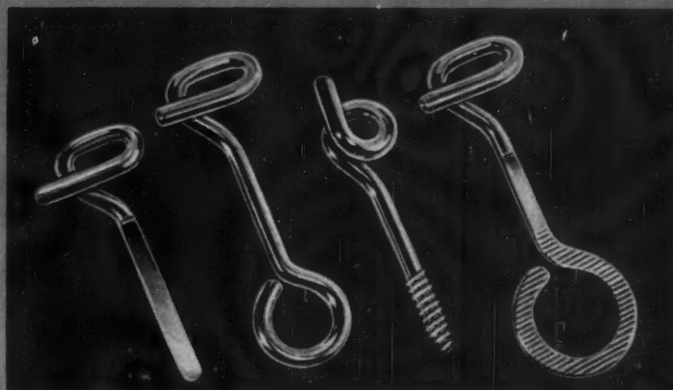


Left—WHITE GLAZED PORCELAIN GUIDES

The Mitchell-Bissell Company originated the use of porcelain as a thread guide for the textile industry. The white Glazed Porcelain Guides shown here are representative of thousands of patterns that have been sold to all branches of the textile industry since this company was founded over seventy years ago. Improved in quality from time to time they are still "standard."

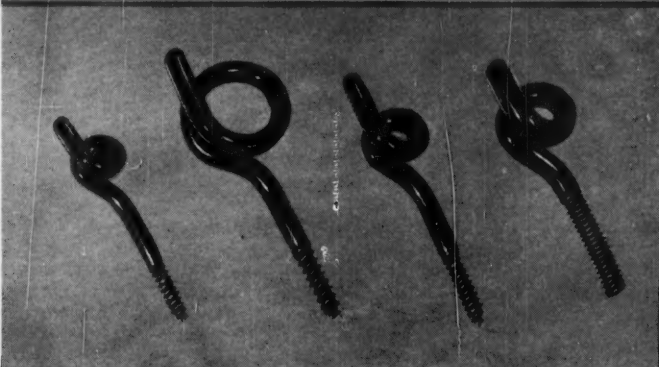
Right—CHROMIUM PLATED STEEL GUIDES

The plating on Mitchell-Bissell Chromium Plated Steel Guides is harder and denser than on any other wire guides. Our methods of fabricating and polishing develop a surface smoothness, with a mirror finish far beyond usual commercial standards. Because of their superior resistance to thread wear these guides are used extensively on machinery for processing rayon and nylon yarns and also for many other severe applications. Also available in Satin Finish.



Below—ENAMELED IRON GUIDES

Where wire guides are desired, and service conditions do not require chromium-plated guides, our Enamelled Iron Guides give exceptionally good service, with a low initial cost. Made with the care and craftsmanship that are standard practice on all Mitchell-Bissell products, these are recommended as centering and ballooning guides, and for cotton, woolen and other soft yarns.



MITCHELL- BISSELL CO.

TRENTON, N. J.

Southern Representative: He'll Associates, Inc.
Greensboro, N. C.

NEW

MACHINERY EQUIPMENT



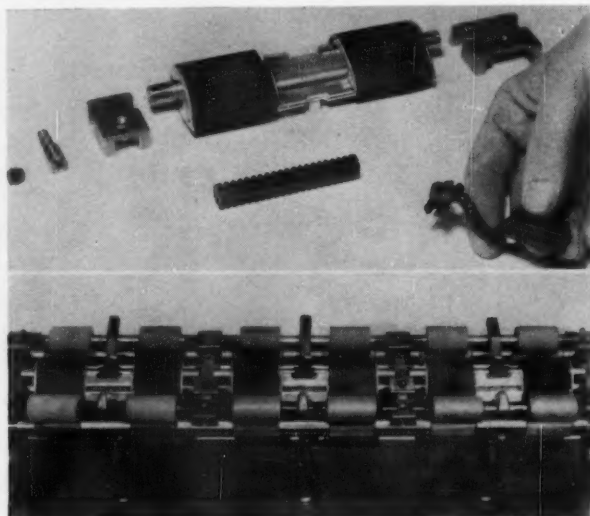
New Whitin Spinning Frame

Whitin Machine Works is marketing its new standard spinning frame, developed to provide high production spinning at low initial and operational cost. The new machine retains all the better-known features of other Whitin spinning equipment. The standard is available in 3", 3 1/4", 3 1/2", 4" and 4 1/2" gauges, with the conventional spindle maximums for each gauge. Traverse is up to 11 inches, the width 27 inches.

All gears are easily accessible and the wide opening door is equipped with safety switch locks. The roll stand is inclined at 45 degrees, with the front to middle as well as middle to back roll settings adjustable. The standard has a built-in vacuum waste collector system. Whitin Unitrol top arm and top rolls may be acquired as optional features. *For further information write the editors.*

Spinning Changeover

Dixon Corp. has introduced a simple Shaw spinning changeover. By adding seven oil-less component parts, outdated single apron Shaw drafting elements can be converted to Dixon's "2-Apron Shaw," thus permitting higher drafts and improved yarn quality. The heart of the changeover is the middle top roll apron and cage assembly, which is oil-less and operates on Rulon bearings said never to require lubrication. *For further information write the editors.*



Shaw Spinning Changeover

Offer Krantz Equipment

The complete line of yarn dyeing machines, drying equipment and centrifugal extractors manufactured by H. Krantz Maschinenfabrik of Aachen, Germany, is being introduced in the U.S. by the Interstate Textile Equipment Co.

Krantz dyeing machinery is manufactured for high pressure work as well as for conventional dyeing and is available in various capacities of up to 1,000 pounds. Its skein dyeing equipment is reported ideal for Orlon, Banlon and other high bulk yarns. A new patented type "gliding suspension" is now standard equipment with Krantz extractors.

Taylor-Stiles Cutters

Taylor, Stiles & Co. has prepared Bulletin 217 which describes in detail Taylor-Stiles 800 series cutters (formerly known as 106). The basic design of this line of machines is similar to that of other Taylor-Stiles precision cutters. They have a usable throat width of 6 inches with the cutting element 8 inches in diameter. Speeds of up to 2400 RPM are standard and in some cases they can be run up to 3000 RPM. Two, four, six, eight, twelve and sixteen fly knives are available on some models; the number selected depends on the kind of material to be cut and length of cut. *For copies of Bulletin 217 write the editors.*

New Overedge Seamer

Willcox & Gibbs Sewing Machine Co. has developed its new 813-C-17 model, a two-needle overedge seamer fitted with trimming knives as well as an adjustable trimmer assembly. The model, designed for use in closing both cotton and Helanca hosiery, in conjunction with the Ledwell-Getaz patents, eliminates the looping operation. The adjustable trimmer assembly makes it possible for the operator to control the amount of material going into each seam. The model also has simplified threading to permit the operator a clear view of the entire threading cycle of the top looper. *For further information write the editors.*

ATMA Meeting Hears of Optimistic Outlook for Machinery Show in May

Progress in making final arrangements for the American Textile Machinery Exhibition—International on May 23-27 at Atlantic City, N. J., was discussed at the 27th annual meeting last month of the American Textile Machinery Association in Boston. William K. Child, of Draper Corp., was unanimously re-elected president; J. H. Bolton, Whitin Machine Works, was named vice president, and F. Gorham Brigham, Jr., was renamed treasurer.

Elected as directors at large for 1960 were: Mr. Child, Mr. Bolton; J. E. Butterworth, H. W. Butterworth & Sons Co.; Roy G. Ross, Barber-Colman Co., and Thomas J. Ault, Saco-Lowell Shops. Elected as division directors were: J. Hugh Bolton, Whitin Machine Works, Division I; Thomas Stilwell, The Warner & Swasey Co., Division II; Frederic W. Howe, Jr., Crompton & Knowles Corp., Division III; James H. Hunter, James Hunter Machine Co., Division IV; Robert Leeson, Leeson Corp., Division V; Thomas H. West, Draper Corp., Division VI, and P. K. Schwartz, Proctor & Schwartz, Inc., Division VII. The board reappointed Mrs. Mildred Andrews as executive secretary, with offices in Vienna, Va.

Principal speaker at the luncheon session was Hawthorne Arey, a member of the board of directors of the Export-Import Bank. He spoke on various phases of financing foreign trade.

Plans for elaborate opening ceremonies of the textile machinery show are well under way. A subcommittee, headed by Frederic W. Howe, and including James H. Hunter and Robert Leeson, is in charge of arrangements.



READY FOR BIG SHOW—Shown left to right, J. H. Bolton, Jr., newly elected ATMA vice president; W. K. Child, re-elected president; Mrs. M. G. Andrews, executive secretary; F. G. Brigham, re-elected treasurer.

The opening ceremonies will take place in Convention Hall, with U. S. Government officials, ambassadors of participating countries in the show, governors of textile and textile machinery states, and congressional delegations from those states, invited to attend.

During the week of the exhibition, several important meetings and seminars have been scheduled. All signs point to an unusually large attendance at the first international textile machinery show in this country.

New Selvage Shear

Curtis & Marble Machine Co. has placed on the market a new selvage shear (patent pending), which has been designed to meet the needs of a high precision machine to shear the fringe filling yarns extending from the cloth selvage on either one or both sides. While the shear was developed primarily to shear the selvage of cloth woven on the new Draper shuttleless loom, field testing is reported to have proven the new machine to be highly efficient on all types of goods from light weight gauze to heavy denims, terry toweling, blankets and glass fabrics. The shear can be used as a part of a cloth finishing range,

or operated as a separate unit with scray and rolling machine. *For further information write the editors.*

Tenter Feeder Switch

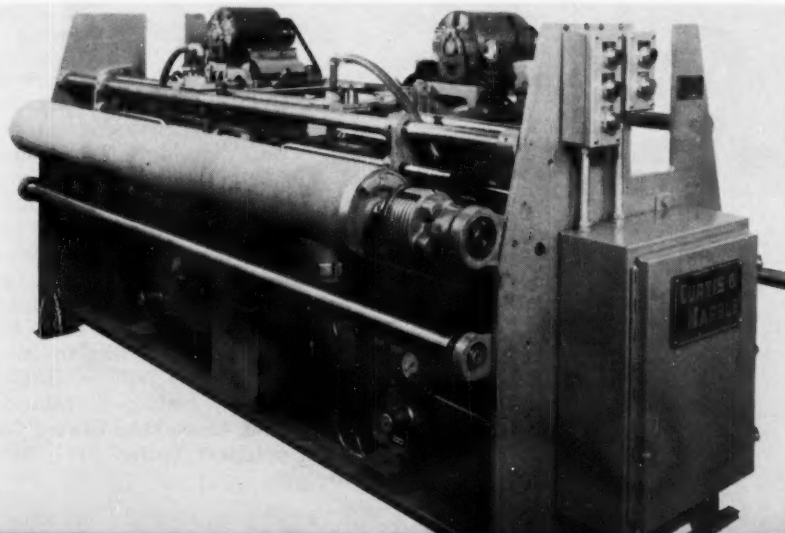
Mount Hope Machinery Co. reports that its tenter feeder switches, now used by textile plants all over the country, are speeding production and cutting costs. The switches also are said to guarantee evenly tented cloth and a constant uniformity, while greatly reducing seconds and re-runs. Features of the new switches include: a convenient outside lever and bold-face setting scale; push-button operation permitting lateral adjustment



of tenter rolls when cloth is not in switch; knurled handwheel to regulate the depth selvage is fed into clip; selvage support plates, and enclosed selvage feeler contacts which are protected from dirt and dust but visible through a plate glass window. *For further information write the editors.*

Ultrasonic Cleaning

Alkaline and acidic detergents are frequently better for ultrasonic cleaning than the more viscous solvents, according to Oakite Products, Inc. This is one of the six practical tips included in the firm's latest service bulletin, No. 16A. *For copies of the bulletin write the editors.*



Curtis & Marble
Selvage Shear

Celanese Acquires Nylril Fiber

Darvan, a nylril fiber, has been purchased by Celanese Corp. of America from B. F. Goodrich Co. Harold Blancke, Celanese president, said the acquisition will substantially expand markets for Celanese chemical products and further diversify the company's line of manmade fibers. Under the transaction, Celanese has acquired the patent, trademark, technical know-how and world rights to produce and market the fiber. Goodrich retains rights outside the textile fibers field, including plastics applications.

Of different chemical composition than other manmade fibers, Darvan is said to have potentialities in a variety of apparel end uses. It can be used in 100% form or in blends with wool, cotton or with other manmade fibers. It is now produced in staple form at a Goodrich plant in Avon Lake, Ohio. Goodrich will continue to operate the plant for Celanese until such time as Celanese starts producing the fiber in its own facilities.

Darvan is a product of research by the Goodrich chemical division during World War II, the original objective being a new synthetic fiber for tire cord. A chemical called vinylidene dinitrile was produced; fibers derived from the chemical were found to have a soft feel.

In 1952 Goodrich established facilities at Avon Lake to produce the staple fiber. Based on evaluation to date, Darvan has shown adaptability to processing into woven and knitted fabrics, dyeing and finishing and conversion into garments. Consumer reaction to garments made of Darvan has been described as good.

Fiber Producers Sue FTC

Last month the U.S. District Court in Washington, D. C., rejected separate applications by two fiber producers for injunctions against the Federal Trade Commission, seeking to bar the Commission from requiring them to identify their new cellulosic fibers as rayon. In one suit, Courtaulds (Alabama) Inc., argued that its new cross-linked cellulosic fibers, tradenamed "Corval" and "Topel" were chemically, structurally and physically different from rayon and thus required a different generic name. Courtaulds has suggested that its new fibers be given the generic name "lin-cron" to denote their major characteristic of cross linked cellulosic molecular structure.

In another suit, Hartford Fibres Co., a division of Bigelow-Sanford Carpet Co., sought to enjoin the Commission from requiring it to identify its new "polynosic" cellulosic fiber, tradenamed "Zantrel" as rayon.

Both cases will now be tried separately before the court, and each plaintiff will introduce evidence to



IT'S A DEAL—Harold Blancke (left), Celanese president, shown examining Darvan products with J. W. Keener, Goodrich president.

In the manufacture of Darvan, acetic acid is converted into vinylidene dinitrile which is then copolymerized with vinyl acetate. The resulting copolymer is spun into the fiber.

show that the Federal Trade Commission erred in ruling that its respective fiber came under the category of rayon as defined in the FTC's rules for the enforcement of the new Textile Fibers Products Identification Act which became effective March 3.

Tire Fatigue Studied

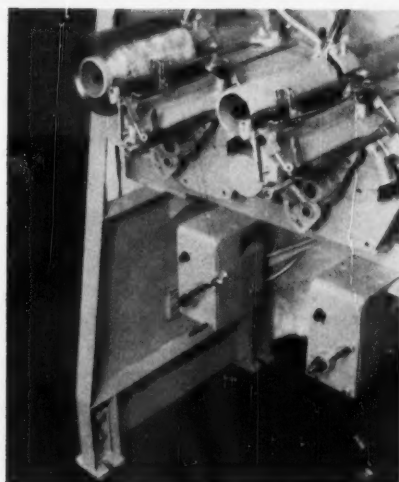
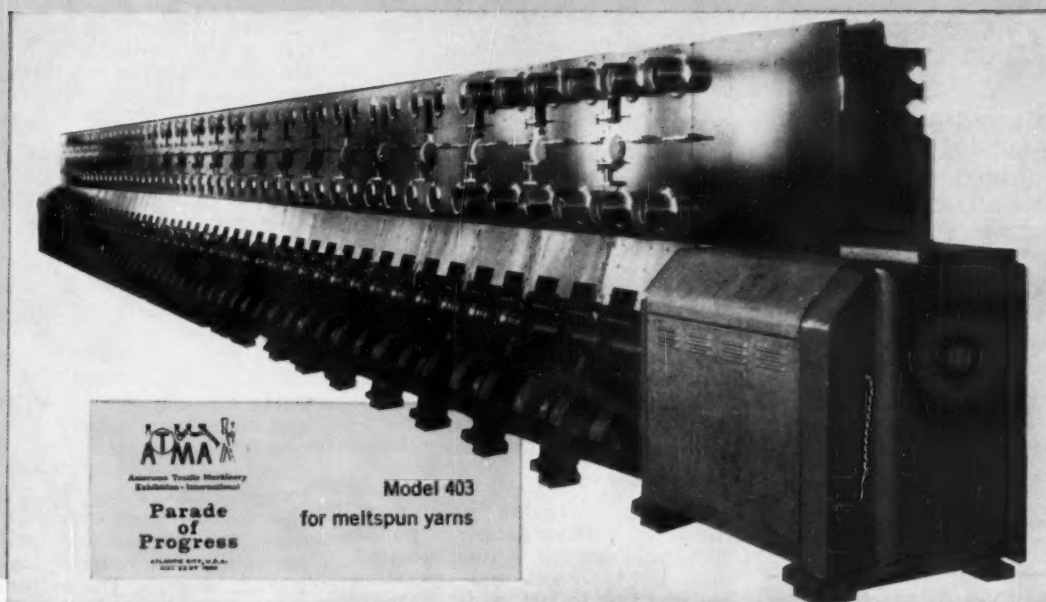
A recent research program has cast considerable doubt on the theory that tire fatigue failure in nylon or viscose tires is caused by a gradual loss of cord strength proportional to tire mileage, according to Fabric Research Laboratories, Inc. Study of fleet tested tires showed that "fatigue, defined as a continuous loss in cord strength, was found not to exist in significant proportions."

The FRL research program was sponsored by American Viscose, American Enka, Buckeye Cellulose, Courtaulds (Canada), Industrial Cellulose Research Limited, Industrial Rayon, North American Rayon, and Rayonier, all companies with a primary or secondary interest in viscose.

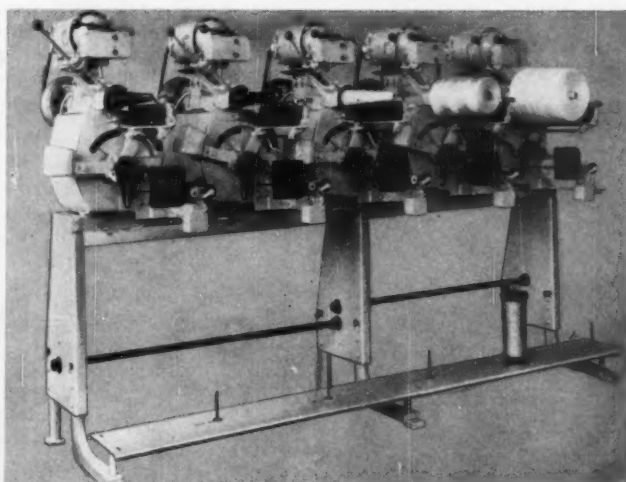


UNITED THEY STAND—At a recent press meeting in New York City, Foster Machine Co., Westfield, Mass., and Lindly & Co., Mineola, N. Y. announced that they had completed an arrangement whereby Foster became exclusive sales agent for Lindly's electronic controls and detection devices. Shown here when the announcement was made are (left to right) Paul Farmer, assistant sales manager, Foster Machine Co.; Howard Lindemann, president, Lindly & Co.; William C. Chisholm president, Foster; V. Mateyka, vice president, Lindly; and Edward Connor, vice president, Foster.

**For Efficient Takeup of
Meltspun, Wetspun and Dryspun Yarns**
Specify
FOSTER WINDING EQUIPMENT
(Used by Leading Producers)



Tensiomatic for wetspun or dryspun yarns



Model 78 for wetspun or dryspun yarns

FOSTER MACHINE COMPANY

A Yarn Winder for Every Purpose

WESTFIELD, MASSACHUSETTS, U. S. A.

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Canadian Representative — Ross Whitehead & Company Ltd., 2015 Mountain St., Montreal, Que. and 100 Dixie Plaza, Port Credit, Ont.
European Representative — Muschamp Textile Machinery (Sales) Ltd., Eider Works, Wellington Road, Ashton-under-Lyne, Lancashire, England

1470



Parade of Progress

JOIN THE PROFIT PARADE! VISIT CONVENTION HALL IN ATLANTIC CITY, N. J. IN 1960* AND SEE THE WORLD'S LARGEST COLLECTION OF ADVANCED TEXTILE MACHINERY. OVER THREE HUNDRED (300) EXHIBITORS WILL DISPLAY OVER THIRTY MILLION DOLLARS (\$30,000,000.00) WORTH OF MODERN EQUIPMENT. RECENT ADVANCES IN TEXTILE CHEMISTRY WILL BE MATCHED BY THE LATEST MECHANICAL DEVELOPMENTS.

ALL UNDER ONE ROOF! PLAN NOW TO JOIN THE "PARADE OF PROGRESS" IN 1960*.

American Textile Machinery
Exhibition
International



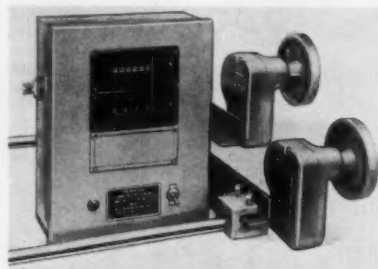
MORE THAN 300 EXHIBITORS, UNDER A SINGLE ROOF, WILL DISPLAY THE LATEST TEXTILE MACHINERY AND TECHNIQUES.

*MAY 23 - 27, 1960
ATLANTIC CITY CONVENTION HALL
NEW JERSEY, U.S.A.



Shrink-Stretch Meter

B. F. Perkins & Son, Inc., has introduced a new shrink and stretch meter said to be accurate within 1/5 of 1%. By reading the two figures on the meter, it is



possible, without slowing down or stopping production, to determine the amount of loss or gain which takes place in material during various processes and to make corrections accordingly. For further information write the editors.

New Selvage Trimmer

Tek-Matic Sales Co. is marketing a new selvage trimmer for cutting fabric loops and loose threads. Both single and double units are available, the latter being particularly suitable for cutting the loops on box-loom goods. The trimmer is said to work efficiently on all types of yarns, including nylon and metallics, with no danger of pulled threads. Features include compact size, light weight and operating speeds of up to 100 yards per minute to keep pace with inspection machines. Clippings are automatically deposited in a container. Adjustments for suction and closeness of cut are simple and blades and guards are interchangeable for various types of fabrics. For further information write the editors.

New Carding Cleaner

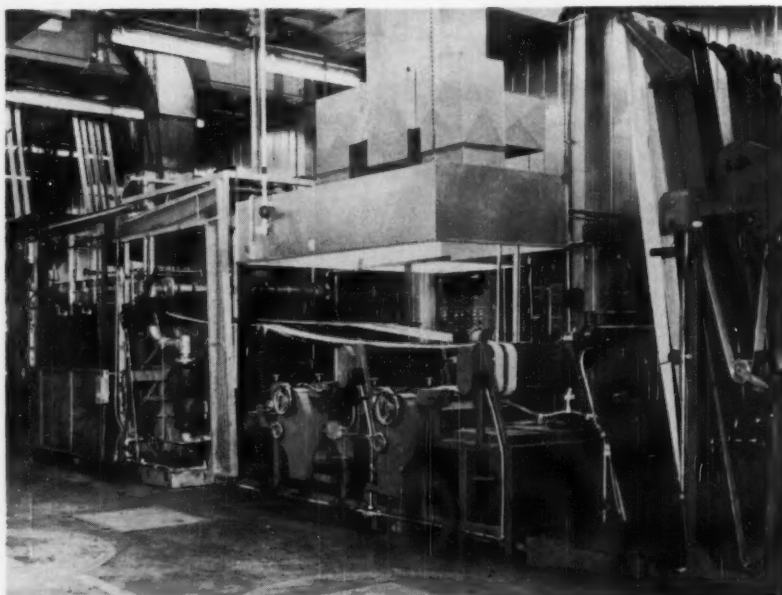
U. S. Department of Agriculture research engineers have developed a new carding cleaner machine, the SRRL model, which is said to have high capability for cleaning ginned cotton as preparation for yarn manufacture. In addition, the SRRL is said to reduce lint loss to about one third of that resulting from use of standard textile mill pickers.

The reduction in lint loss is effected by a lint-recovery system in the trash box that sucks free lint into a tub and puts the lint back into the processing line. Details of the SRRL carding cleaner are now available to industry, and non-exclusive licenses to manufacture the unit in the U. S. on a royalty-free basis can be obtained from the U. S. Secretary of Agriculture. For further information write the editors.

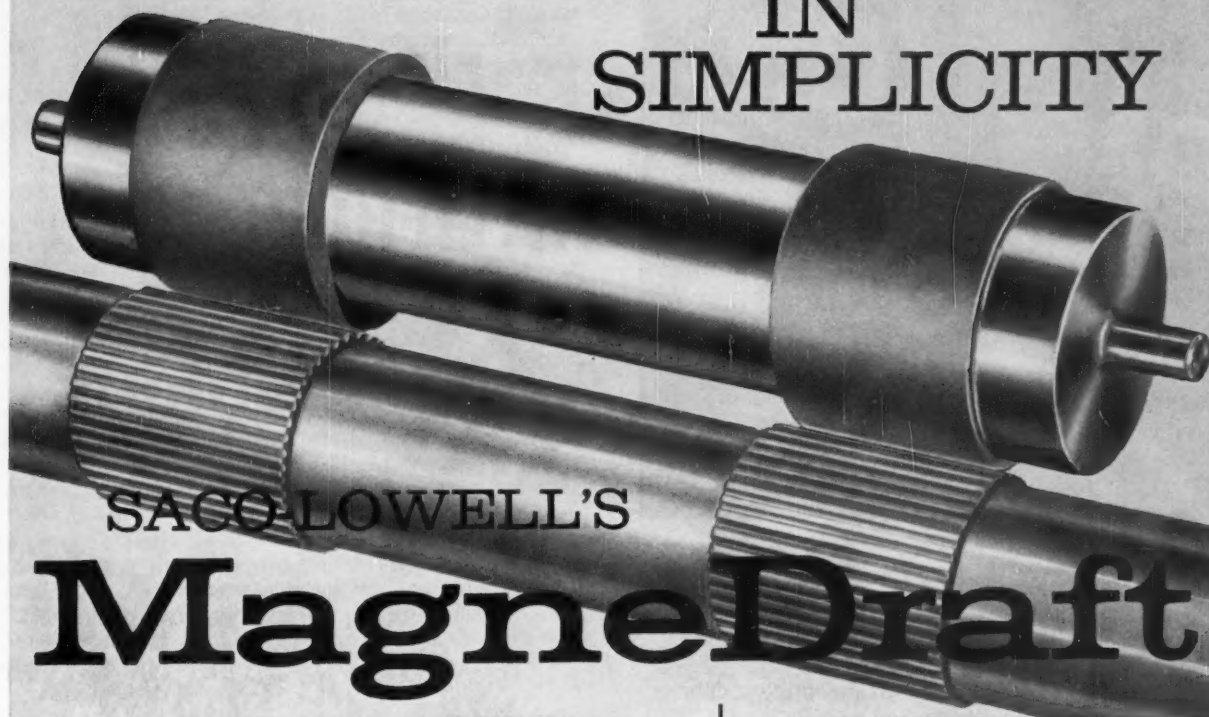
Better Drying Oven

The Schlegel Manufacturing Co. is now operating a 75-foot long drying oven capable of simultaneously drying 12 3 to 4-inch wide strips of latex coated textile products for use by the automotive and home building industries. The oven, made by Selas Corp., is gas-fired and normally operates at temperatures up to 1,000 degrees F. The narrow loom textile products move through the oven at 90 feet per minute, thoroughly drying the latex in seconds. The extreme drying temperatures do not affect the woven fabric due to the short time the material spends in the oven proper. For further information write the editors.

(Below) Latex Drying Oven
at Schlegel Mfg. Co.



THE ULTIMATE IN SIMPLICITY



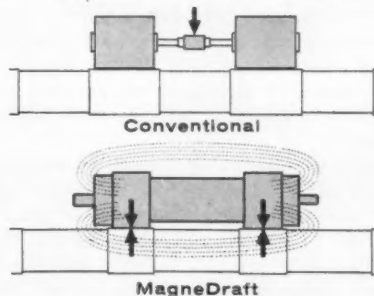
SACO-LOWELL'S **MagneDraft**

MagneDraft*, using the forces of magnetic attraction to produce required roll pressures, gives the cleanest, most efficient operation of any spinning drafting element ever developed. *Completely eliminated are saddles, stirrups, levers, hooks, springs, and weights* used with conventional drafting systems. Most important — MagneDraft requires *no lubrication* (oil or grease) in the drafting zone. Maintenance costs are reduced to an absolute minimum due to the few component parts. A unique method of supporting the front top roll makes piecing-up around the end a very quick and simple operation.

MagneDraft installations in leading mills are producing yarns of superior quality with a substantial reduction in drafting gear wear and power consumption. Get all the facts from your nearest Saco-Lowell sales office.

*U.S. Pat. No. 2,686,940

WORN NECKS ON STEEL ROLLS ELIMINATED



The mutual attraction of the magnetic forces gives a "squeezing together" pressure at the nips, instead of the "pushing down" between the cots of the conventionally weighted top roll. This greatly reduces wear in the entire drafting element, eliminating worn necks on steel rolls.

See this machinery at the A.T.M.A. Exhibition, Atlantic City, May 23-27. Saco-Lowell Booth 482.



Saco-Lowell Textile Machinery Division SACO-LOWELL SHOPS

Executive and Sales Offices: EASLEY, SOUTH CAROLINA

Branch Sales Offices: ATLANTA, GA., CHARLOTTE & GREENSBORO, N. C., GREENVILLE, S. C., SACO, ME.



SMART SUIT—This gray and white jacquard nylon fabric tailors into a loose-fitting middy jacket and matching skirt. Both are light weight and easy to pack.

by F. C. Livingstone

THE MOST varied collection of nylon clothing, fabrics and household textiles ever assembled under one roof was shown at the fifth British Nylon Fair, at the Royal Albert Hall, London, at the beginning of February. Sponsored by British Nylon Spinners, Britain's sole producer of nylon, the fair is the only event of its kind in the world and was supported by more than a hundred leading manufacturers and dress designers. Highlighted everywhere was British Nylon Spinners' new trade name of Bri-Lon, which was introduced only last fall but which is already showing wide general acceptance.

There were a number of excellent reasons for the introduction of the new name for nylon in apparel fabrics not the least being that some of the early patents are soon to expire and there is the threat that cheap and possibly inferior foreign materials may be shipped into Britain and sold as nylon. The use of Bri-Lon as a brand name will help to defeat any such move before it can get going.

Another highlight was the introduction of knitted nylon outerwear for the first time. This included dresses and suits as well as sweaters and separates in the new textured nylon jerseys.

The Nylon Fair showed that the industry is alive with new ideas, developments and styles. Among the new things was a washable nylon suede, shown for the first time as a fan-colored tailored motoring coat. The surface will not rub into shiny patches and marks can be washed off.

There were plenty of new ideas, too, for beachwear. Candlewick beach coats, light to carry and quick to dry, in candy stripes or two-color contrasts; stretch nylon swimsuits printed with flowers on a white background, or multicolored spots in bolder and more colorful designs and four-piece beach outfits.

Nylon rings bell in British fashions

Special nylon exhibit
displays new products

Two new styles combine nightwear and breakfast frocks. A puff-sleeved, round collar shortie nightdress, printed with blue and yellow roses, has a sleeveless button-through pinafore in plain blue brushed jersey to give the look of a housefrock. Printed baby doll pajamas become a dress with the addition of a plain wrap-round skirt.

Also for nightwear and seen for the first time, was the new sparkling lingerie. Three shortie nightdresses were shown to illustrate this development; they were in shades of rose pink and silver over wild rose and yellow.

More color and more intricate designs were to be seen in nylon lace. One exhibit was showing new all-overs in nylon which they prophesy will lift lace dresses right out of the luxury class. The fabrics can be dry cleaned and do not need unduly gentle handling.

Ribbons and bows also formed outstanding exhibits. One of the world's largest ribbon firms, which produces a million yards of ribbon a week—the majority in nylon—showed a nylon satin ribbon for lingerie and a collection of prints for trimmings and hair ribbons. Pre-tied scatter bows are heat-sealed to prevent fraying.

Nylon was also featured for lingerie. In this section outstanding exhibits included blue mandarin coats over tapered blue or black nylon satin pants, which can serve as lounging pajamas. Negligees as elaborate as turn-of-the-century teagowns, were shown to have tiers of frills, sweeping skirts and ruffled leg-of-mutton sleeves.

The use of nylon for children's garments is now reaching record levels and the Fair had plenty to show in young ideas. There were Bri-Lon jerseys,

cardigans and lumber jackets. Children's bath gowns in nylon candlewick were shown in pastel shades.

Textured nylon stockings were shown in new designs of mesh and lace, with checks and wavy rib patterns. For sports and country wear, ribbed crepe stockings were shown in brilliant colors. Production and sales of British nylon stockings have now reached record levels. During 1959, total output was an estimated 232 million pairs. The average consumption was 11.3 pairs per woman, but it is known that the under-thirties consumers buy more than 18 pairs each a year. Eighty per cent of all British nylons are 15 denier.

Two main color trends appear in the new shades for stockings. There is a revived interest in the grays, from pale mist to soft donkey grays to the purplish tones of evening haze on the heather, and an extended use of contrasts of light with dark: bronze and browns with beige.

Sparkling stockings too were another new idea. Made from a new yarn with a built-in glitter which cannot be washed out, these were shown in gold, silver, copper and rose pink.

Nylon was also shown as useful in virtually every type of household textile. There were washable rugs, handwoven from knitted nylon fabric. In bright colors, they are available in checks, stripes or plain shades for nurseries or bathrooms, since they are easy to wash and quick to dry.

Candy-striped valances in shades to match nylon sheets were another new idea being shown for the first time. There were new colors and new printed patterns for sheets, and new reversible pillow cases, fleecy on one side and smooth on the other, were also on display.



FOR NEXT WINTER—An example of a deep pile nylon coating which has gone over well in the British Isles.



NEATLY KNITTED—Offered to consumers under the new trade name, "Bri-Lon" the fabric in this knitted sheath has a raised rib pattern to give it distinctive texture.

A new nylon blanket was shown made from one of the bulked nylon yarns. Light in weight, but snug and warm in use, it makes home washing a practical proposition.

A big continuous promotion campaign is already under way to push the new name Bri-Lon. Wide use of printed advertising and TV is being made to help make the name a household word. The campaign, one of the most intensive in the history of the textile industry, has been planned to cover seven sections, each with a distinctive category of goods, in a way which will be of benefit to manufacturers, wholesalers and retailers.

New Nylon 6 Plant

Plans for the construction of a plant to manufacture nylon 6 at The Dow Chemical Co.'s James River Division at Williamsburg, Va., have been announced. The new multi-million dollar plant will have an initial capacity of 12 million pounds annually of filament yarn primarily for use in tire manufacturing. Construction started in March with completion slated for late 1961. The new nylon plant will in no way affect operations at Dow's Zefran acrylic fiber plant, which is producing staple fiber for apparel and other uses. Caprolactam, the principal raw material used in the production of nylon 6, will be obtained from Dow Badische, a Dow associated company with facilities at Freeport, Texas.

ARNEL®

by



Identification assured



Ever since the inception of ARNEL, Kenyon finishing has been in complete conformance with the standards of the Celanese Corporation of America for this versatile fiber. We have delivered millions of yards to converters, and their customers have received millions of Arnel retail tags.

Your garments are assured all the benefits of a tie-in with the new Arnel Identification and Merchandising Program when you specify *Kenyon Finishing* to your converter of —

ARNEL and ARNEL-RAYON

**PROSPECTOR • SHARKSKIN
BASKET-WEAVE**

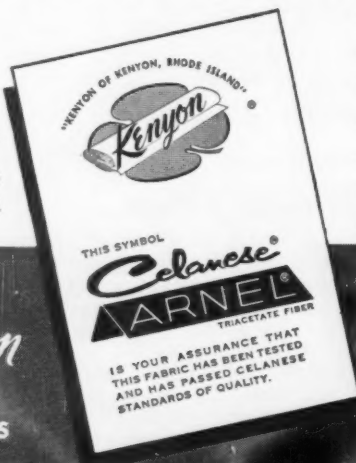
a Celanese contemporary fiber

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DYEWORKS
INC.

"KENYON OF KENYON, RHODE ISLAND"



NEW FABRICS

NEW YARNS

Rovana Luggage Fabrics

New luggage fabrics of Rovana, The Dow Chemical Co.'s saran circo-tape, are being readied for marketing in a line of luggage by Atlantic Products. Two basic fabrics are being used for new lightweight luggage, both having black warps, one with white and one with blue filling of 100% Rovana.

Creslan Plaids

The new 1960 fall collection of Earl-Loom woven wool-like fabrics features a blend of 50% Creslan acrylic fiber and 50% solution-dyed viscose rayon. These plaids are in muted colors, including Madras types, semi-traditional overplaid tartans and multi-colored district checks. For further information write the editors.

New Vycron Knits

Beaunit Mills is introducing Vycron polyester fiber in a line of knits. Already being shown is a group of 50-50 blends using Vycron 1-1 Acrilan and Vycron 1-1 cotton in a selection of plain and fancy patterns. The 50-50 construction is said to provide good color ranges and even distribution throughout the fabric. Their Vycron content also provides complete washability, while pilling is virtually eliminated. The fabrics have been certified for quality by the U. S. Testing Co. For further information write the editors.

New Rainwear Fabric

Allen Knitting Mills has laminated water repellent jersey of 100% Acrilan acrylic fiber to ScottFoam, a new urethane interlining, to provide a new fabric for rainwear. Scottfoam is said to be composed of thousands of micro-porous cells, affording good insulation. Both the Scottfoam and Acrilan are lightweight and together make a bonded fabric which is claimed to be soft and drapeable for use in any type of all-weather coat. For further information write the editors.

Acrilan Sleeping Bags

A line of Acrilan-filled sleeping bags is now being manufactured by G.I.C. Sporting Goods Co. in three weights. The 3½-pound "Conquerer" has a double layer construction and is available in an olive drab shell of Chemstrand nylon with multi-colored scenic lining; it retails for \$24.95. The 3-pound "Mallard" is reported to offer warmth at 20 degrees below zero. Its green outershell is of heavy duty rayon twill with a striped cotton flannel lining; it retails for \$19.95. The 2-pound "Eagle" is of single layer Acrilan construction with an olive drab shell with rayon plaid lining; its retail price was not disclosed. For further information write the editors.

Nonwoven Undergarments?

The lingerie industry should take advantage of modern science in designing undergarment apparel, according to Philip Simon, Kayser-Roth Lingerie Co. president. Speaking at the company's showing of its new spring line, Simon said that if industry leaders use available research with imagination "I predict that within the next decade we'll have disposable panties of nonwoven fabrics and temperature-conditioned slips and gowns." He also said we will have fabrics "that change color as needed to coordinate with outerwear." The company's spring line includes a new nylon tissue tricot, called Satilene, which is said to be similar in appearance to satin.



Labeling Law Questions Answered

The legal counsel for the Textile Distributors Institute has reported the following interpretations of the rules for the enforcement of the Textile Fiber Products Identification Act by the Federal Trade Commission. These interpretations were offered in response to questions concerning the application of the Act raised by members of the Textile Distributors Institute.

Casket Linings

Are fabrics which are sold for use as lining for caskets required to be labeled under the Fiber Labeling Law?

No. The law basically applies to household textile articles including wearing apparel (Sec. 2(h) of the Act.). Also, Sec. 12 of the Act excludes linings incorporated primarily for structural purposes and not for warmth (Sec. 12(a) of the Act). Remember, however, that in selling textile fiber products intended for exempt uses, while you are not required to show the fiber content on the invoice or contract, etc., you must state in your invoice or other papers that the product is not intended for use subject to this Act (Rule 44).

Linings for Curtains

A converter sells metal insulated fabrics to a drapery manufacturer for use as lining for draperies. The manufacturer, or retailer, may, in his advertising refer to the fact that the linings provide insulation. Are such linings subject to the law and required to be labeled?

No. The regulations provide that linings incorporated for structural or decorative purposes are exempt. Although linings intended for warmth are required to be labeled, the regulations intended that such linings would include only linings incorporated into articles of apparel which provide warmth to the person. Therefore, even though metal coated linings of draperies may be advertised as providing insulation, they will not be required to be labeled. It should be noted, however, that if a representation is made as to any one or more of the fibers contained in the insulated lining, then the exemption no longer applies, and the full fiber content with percentages must be stated. (Rule 45 (b))

Where such fabrics are sold as piece goods to retail stores, each piece is required to be labeled with complete fiber content, even though the goods may be offered for sale in the drapery piece goods department. (Rule 16(a) (1))

Burial Garments

Are fabrics sold for use in the manufacture of burial garments or the burial garments themselves required to be labeled under the Law?

No. In our opinion, burial garments are not "articles of wearing apparel" within the meaning of

the Law, and therefore are exempt. (Sec. 2(h) of the Act) Of course, this would not be so if the article was also usable as an ordinary garment or article of wearing apparel and sold without specification as to its use.

Tags

May tags furnished by a converter showing only fiber content be used by the garment manufacturer? A converter wishes to furnish hang tags to a garment manufacturer showing the fiber content by percentages of fiber. The hang tag will not show the name, number or other identification of the garment manufacturer. May such hang tags be used by the garment manufacturer without any other tag or label?

No. The name or other identification which must appear on the label used by the garment manufacturer must be that of the garment manufacturer and not of the converter. However, the regulations do permit a manufacturer to show the fiber content on one label and to show his name on a separate label, which will be attached to the garment and in close proximity to the fiber content label. Accordingly, where the garment manufacturer uses the label or hang tag furnished by the converter, he may either attach a separate label immediately adjacent showing his name, or he may place his name or registration number on the face or reverse side of the label or hang tag furnished by the converter, displayed or attached immediately adjacent to the fiber content label. (Rule 16 (b))

Garments with Two or More Fabrics

Where a garment manufacturer makes a one-piece garment with sections of different fabrics, may he attach a separate label for each fabric giving the fiber content of the particular fabric?

No. The fiber content of all the different fabrics in a one-piece garment must be shown on one label. (Rule 25). For example: Body—100% Nylon, Sleeves—100% Acrylic

Use of Trade Name

For example, a company does business or is known as "Jones Fabrics". Jones Fabrics actually is a division of American Fabrics, Inc. May the company use the name "Jones Fabrics" as the identification of the company name on the label without reference to "a division of American Fabrics, Inc."?

Yes. The regulations under the Textile Fiber Products Identification Act are more liberal than the requirements under the Wool Products Labeling Act. The fiber labeling law permits the use of a trade name under which the firm does business (Rule 19(a)), whereas the wool products law requires that the legal name be used.

Quality or Origin of Fiber

A broadcloth fabric is made of a warp of 100% combed cotton and a filling of 100% pima cotton, with the warp constituting 65% of the total fiber weight

of the fabric. May the cloth be represented as "pima broadcloth?"

No. Neither may the label state 100% American cotton warp and 100% pima cotton filling. The fabric may be labeled in any of the following ways: 1) 100% cotton or all cotton. (Rule 27). 2) 100% cotton broadcloth or all cotton broadcloth. 3) 65% combed cotton 35 pima cotton. (Rule 16 (d)). Note: The percentages of the combed cotton and pima cotton must be given in relation to the total fiber weight of the fabric.

Use of Trademark "Arnel"

Is the name "Arnel" sufficient identification of a fiber on a label, invoice or other paper?

No. "Arnel" is the trademark for a triacetate

fiber. The name "Arnel" may therefore be used in giving fiber content only in conjunction with the generic name "triacetate," such as "Arnel Triacetate." (Rule 17)

Labeling Each Piece

Are dyers, finishers and printers required to label fiber content on each piece shipped?

No. Processors or finishers performing a processing service in accordance with a contract with a converter or distributor are exempt from the Act (Sec. 3(d) (2) of the Act). However, if a processor, by mutual agreement with his customer, agrees to put hang tags on each piece, the customer (converter or distributor) is responsible under the law for any omissions or mistakes on such label (Rule 2 (d)).

Invitations Mailed for TDI Outing

Invitations to the Textile Distributors Institute's annual golf tournament to be held June 22 to 24 were mailed last month, according to an announcement by Hilda A. Wiedenfeld, TDI's executive director. The tournament this year will be held for the first time at the Concord Hotel, Kiamesha Lake, N. Y., located near Monticello, in Sullivan County. In other years the tournament had been held at Shawnee Inn near the Delaware Water Gap in Pennsylvania.

Samuel Schwartz, Cadillac Textiles, Inc., chairman of TDI's 1960 golf tournament committee, stressed that the affair is traditionally limited strictly to men only. Wives of members and guests attending the tournament may join their husbands only on Friday afternoon, June 24 at the conclusion of the tournament to spend the weekend at the hotel if they so wish, Mr. Schwartz said. He specifically requested all those planning to attend the tournament to respect the rules which limit the affair to men only.

Service Bureaus Now at TDI Office

The Design Registration Bureau and the Trade Mark Bureau, recently taken over by the Textile Distributors Institute as part of its expansion program, are now located at the Institute's headquarters, 469 Seventh Avenue, New York 18, according to a recent announcement by Nat Leavy, president of the Institute.

The two service bureaus for the textile industry, Mr. Leavy noted, were transferred on Jan. 1 from the American Cotton Manufacturers Institute to the TDI. Both Bureaus and their personnel continued temporarily in the ACMI office at 10 East 40 Street, New York City until their removal to the TDI's headquarters on March 4. Mr. Leavy asked the trade to take note of the new address of both Bureaus, and stated that unused Trade Mark Bureau applications will be honored by the TDI. Both Bureaus now operate under the supervision of Miss Hilda A. Wiedenfeld, executive director of the TDI.

Multi-Machine Assignments

(Continued from Page 33)

and $t_2 = 7$, keeping the total $t_1 + t_2$ at 8 as before. Nothing else in the time study data is altered.

Now p becomes 0.2985, and F becomes 0.959.

At $N = 3$, $A = 2.056$, and $D = 2.140$.

Then E becomes 0.713, and B becomes 0.678.

E was 0.707. It is moving in the right direction.

Try $N = 4$.

At $N = 4$, $A = 2.530$, and $D = 2.640$.

E for $N = 4$ becomes 0.660 (up from 0.645). B is now 0.836.

This approach is promising, so Table V is built up, showing for possible assignments 3, 4 and 5 machines per operator how efficiency and workload move as t_2 is diminished and t_1 is built up. The Table shows that if half of the runtime work can be done on a non-priority basis, then assigning 4 machines to an operator instead of 3 would permit the attainment of the desired 70% efficiency.

If this redistribution is indeed feasible, it is infinitely better to discover it in advance this way than to have an alert loom tender make the standard look foolish!

New Polyester Named "Fortrel"

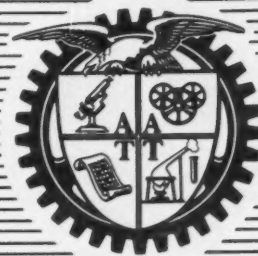
"Fortrel" is the new trademarked name for the polyester fiber to be manufactured by Fiber Industries, Inc., a corporation owned jointly by Celanese Corp. of America and Imperial Chemical Industries, Ltd., of Great Britain.

Apparel made of Fortrel will appear on the market for the first time in the spring of 1961, according to a spokesman for Fiber Industries. The fiber is expected to find widespread application in fabrics for men's, women's and children's wear and also in industrial uses. The name Fortrel replaces the earlier name for the fiber, "Teron". Construction is now going forward on a plant at Shelby, N. C. for the manufacture of Fortrel. The first unit, scheduled to make staple fiber, is expected to be in operation by mid-1960.

Modern Silks on Display

An exhibit of contemporary silks made in the United States and Japan will be held until April 24 at the Metropolitan Museum of Art in New York City. The exhibit will show more than 200 silk fabrics of new texture and design intended for apparel and home furnishings in the years ahead. Sponsor of the display is the International Silk Association.

PAPERS OF THE AMERICAN ASSOCIATION FOR TEXTILE TECHNOLOGY INC.®



AATT

ALON

a new acetylated cellulosic fiber

By Takeo Takagi & J. B. Goldberg

CELLULOSE ACETATE fibers and yarns have a specific gravity of about 1.3, which is similar to that of wool, a moisture regain of 6.5% and dry tenacity of 1.2 to 1.4 grams per denier. Among acetate's many attributes are its pleasant hand, a high degree of whiteness, good recovery from deformation or crease-recovery, high specific electrical resistance and the ability to be dyed with a class of color which, while imposing limitations in some respects, add to its versatility in combination with other man-made as well as the natural fibers.

Comparatively low tensile and flexural strength and low heat resistance are shortcomings which have restricted more widespread acceptance in many textile applications. Although the consumer is now reasonably well-educated to acetate's thermoplastic properties, its characteristic softening and sticking at from 350°-400°F. and its tendency to glaze when subjected to ironing temperatures normally satisfactory for many other natural and man-made fibers necessitate care in the hot ironing of apparel and household fabrics.

Methods for the production of higher strength acetate fiber, excluding the stretched and saponified types, such as Fortisan, have been disclosed in the patent literature. Professor Sakurada of Kyoto University in Japan predicted that high-tenacity acetate fiber will be made of acetate flakes of a high degree of polymerization, but this has not been developed commercially. It has been recognized, nevertheless, that if such a stronger acetate, particularly in staple form, does become available, permitting the production of finer spun yarns, the market will be appreciably greater than it is today.

Development of Alon

Alon is a high-tenacity acetate fiber produced by the acetylation of a special high-strength rayon in

fibrous form with acetic anhydride vapor. The manufacturing process and equipment are patented in the U.S.A., England, Germany and many other countries as well as Japan. At present it is produced in staple form only, but continuous filament yarns, spun yarns and woven and knitted fabrics may also be acetylated with accurate control of the degree of acetylation.

Pilot-plant output was started in 1952 with the preparation of acetylated crimped rayon staple under the name of Acetovis. Its tensile and knot strengths were 1.8-2.0 and 1.0 grams per denier respectively. Being much stronger than ordinary acetate staple, it was expected at that time that expansion of production facilities would be rapid and an output of 2,000 pounds per day was continued for several years according to the market estimate.



Takeo Takagi

VICE PRESIDENT, TOHO RAYON CO., TOKYO

Paper presented at the February 3rd, 1960 meeting of the American Association for Textile Technology at New York, N. Y.



J. B. Goldberg

Mr. Goldberg is a consultant to the textile and allied industries. A graduate of Massachusetts Institute of Technology, he was for many years research director of J. P. Stevens & Co. from which he resigned in 1953 to establish his consulting business with offices in New York City. The author of a book, "Fabric Defects", and many articles and papers on textile subjects, he publishes "Texttracts", a monthly summary of textile news.

In the meantime, the production of a super high-tenacity rayon began in 1957 and research was continued on the acetylation of this fiber to yield an even better product. By 1957-58 this new acetylated rayon was being manufactured at the rate of several thousand pounds monthly and it was decided to name the new fiber Alon, replacing the original Acetovis. A new small-scale closed reactor, the Unit Acetylator was developed, permitting a high degree of efficiency and large-scale plant operation was commenced in March of last year. Late in December it was announced that capacity would be increased to about 17 tons a day by this summer.

Review of Fibrous Acetylation

Patents covering fibrous acetylation processes involving cotton linters or wood pulp were first issued many years ago. Over 50 years ago one such patent disclosed the acetylation of cellulose in fibrous form with a mixture of acetic anhydride solution and an inert diluent, such as benzene, in the presence of sulphuric acid as a catalyst. In 1910, the French Rhone Chemical Co. patented a method for treating cotton with acetic anhydride vapor at low pressures, also using sulphuric acid as a catalyst.

In the Sandoz process, patented in the United States in 1932, cotton is acetylated with the same catalyst and a mixed solution of acetic anhydride and acetic acid, said to be the technique used to produce Cotopa, a cotton yarn resistant to direct dyestuffs. Still other foreign patents describe the acetylation of cotton or regenerated cellulose impregnated with sodium or potassium acetate and treated with acetic anhydride.

Techniques for the partial and full acetylation of cotton have been explored and developed for a number of years by research workers at the U. S. Dept. of Agriculture laboratory in New Orleans and results of their progress have been published. Some of the attributes of the partially acetylated cotton are improved resistance to chemical and heat degradation and to microbiological deterioration, whereas the fully acetylated types boast of superior heat and abrasion resistance and high tensile strength.

Development of Fibrous Acetylation

About 30 years ago Professor Sakurada of Kyoto University began his study of fibrous reactions of cellulose. In 1934 he discovered that if cellulose raw

material is swollen in water, followed by replacement of the water by acetic acid before acetylation, in spite of its heterogeneity, the acetylation occurs so rapidly in the reaction liquid that superior triacetate is easily obtained. This was patented in 1938, undergoing several improvements in the following years, until at last it was standardized as The Acetylation Process of Regenerated Cellulose. In 1941 the pilot-plant scale experiment was conducted in the Chemical Research Institute of Kyoto University.

At the time the Toho Rayon Co. began to commercialize the crimped rayon staple invented by Dr. Suda of the same Research Institute, intending to replace wool by this rayon, but it was inferior to its higher density and poorer resilience. To improve these faults and to make a more wool-like product, acetylation trials were conducted under the direction of Professor Sakurada, and the converted staple was spun into yarn by the worsted spinning system, and woven into suiting fabrics. These were handled as easily as was expected but they were not satisfactory, particularly because strength was too low. During World War II this study had to be abandoned, but in September of 1948, subsidized by the Education Ministry, the investigation was resumed by Dr. Suzue and a co-worker in Professor Sakurada's laboratory.

The fibrous acetylation process in vaporized acetic anhydride was also invented in the laboratory in 1944, when study was made of the difference between the acetylation in vapor phase and that in liquid phase. In January of 1950 research on the sulphuric acid catalyzed acetylation process in vapor phase was almost completed, and Dr. Suzue returned to the Toho Rayon Research Institute of Tokushima. There the fourth laboratory, in which the acetylation processes were extensively investigated, was newly founded in June of the same year. Mr. Nagai was sent to Professor Sakurada's in place of Dr. Suzue to experiment in making the pretreatment more simple.

The advantage of the sulphuric acid catalyzed acetylation process in vapor phase is that the reaction proceeds at or below room temperature. But at this temperature the vapor pressure of acetic anhydride is so low that the reaction rate is not rapid enough for commercial use. With this in mind, investigation was made of the acetylation catalysts to find some that could be used at high temperature. The "water-soluble salts catalyzed acetylation process" in which these catalysts are used was patented in 1951 and the kinds of catalyst were rapidly expanded.

In the next year the process to acetylate completely dried cellulose was invented, not only reducing the consumption of acetic anhydride but also increasing the reaction rate. In 1956 "the blow-trough-circulation acetylation" was invented, making possible the release of the reaction heat stored in the batches of acetylated rayon staple with a more rapid and homogeneous reaction. Thus the foundation of the engineering techniques to commercialize Alon was established.

In the meantime various properties both of rayon staple and acetylated rayon were investigated, until it was discovered that an acetate staple with exceptionally high tensile and knot strength could be obtained by using the high tenacity rayon of high DP.

In August of 1952 a pilot-plant was set up to produce about 200 pounds of the acetate daily. Extensive spinning and weaving trials were conducted and at the end of 1954 woven fabrics made of blends of crimped rayon staple and the acetylated "Acetovis" were marketed. During these years several inventions,

as indicated above, made improvements in the pilot-plant, the production capacity of which increased steadily until an output of 2,000 pounds per day was reached in April, 1956.

The Manufacturing Process

The manufacture of Alon is divided into two parts: (1) production of special high-tenacity rayon and (2) acetylation of the rayon. The rayon staple, made from a special high- α content pulp, has a higher DP; dry and wet tenacity are superior to those of ordinary rayon. Filament cross-section is heart-shaped and structure is of the homogeneous all-skin type. The acetylation process is continuous and is automatically controlled. The rayon staple is first passed through a solution of water-soluble salts, squeezed to retain the proper pick-up and then dried. This pretreated staple is continuously led by the net conveyor into the Unit Acetylator, in which the vaporized acetic anhydride of high temperature is forced to circulate. The vapor in the acetylator cuts off the open air at the entrance and exit of the chamber by a simple and sure patented method.

The staple, acetylated to a determined degree on the continuously moving conveyor, passes through a catalyst recovering stage, and is then bleached and given a lubricating finish. As the reaction proceeds, acetic acid which is produced as a by-product during acetylation will increase in the circulating gas. To separate and recover this acetic acid with a high degree of efficiency, part of the gas in the acetylator

Characteristics of Alon

Tenacity and Elongation. Dry tenacity of Alon is about twice that of ordinary acetate, triacetate or wool and close to that of many of the acrylics. Wet tenacity is about 80% of dry tenacity. (See Figure 1.) Knot strength is superior to that of acetate and regular rayon and dry and wet elongations are about midway between those of acetate and rayon.

Elastic Recovery. Tests indicate that Alon is somewhat better than both ordinary acetate and triacetate in elastic recovery at 2% and 4% strain and slightly below Orlon acrylic fiber and wool in this characteristic.

Specific Gravity. About 1.34, equal to that of acetate and wool and much below that of cotton and rayon.

Moisture Regain and Swelling. Under standard atmospheric conditions of 65% R. H. and 70°F., Alon has a regain of approximately 5%, considered advantageous over the less absorbent synthetics for certain apparel fabrics. Reduced wet-swelling as compared with ordinary rayon and the accompanying lower reduction in wet tensile properties are also regarded as important advantages over viscose, particularly in wet processing as well as in the laundering of washable garments.

Heat Resistance. Alon has no melting point, hence presents no problem of sticking or fusing in hot ironing. When subjected to a temperature of 130°C. in water under high pressure, it loses none of its tensile strength and does not change in acetyl value. There is some yellowing at 200°C. An advantage of its resist-

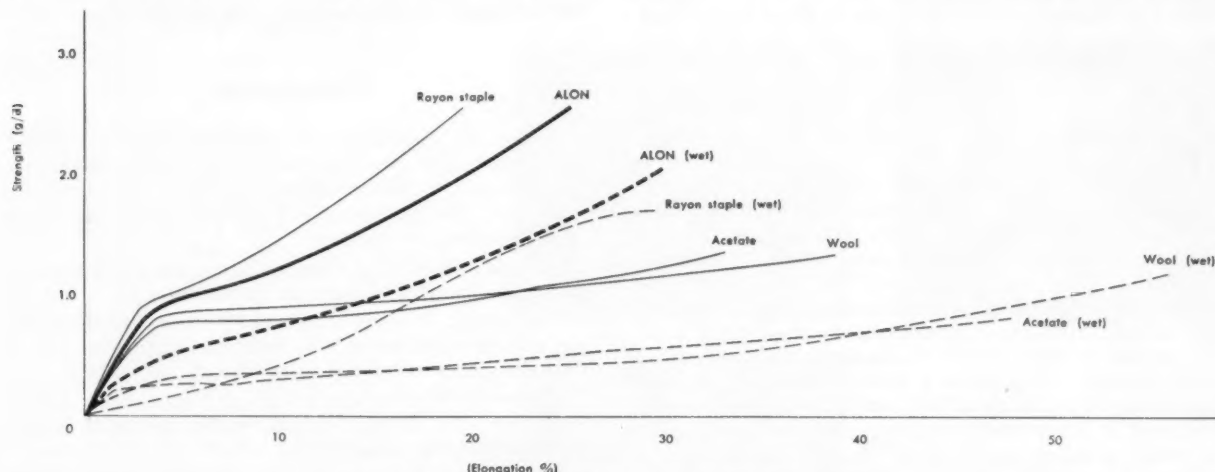


Fig. 1. Strength-Elongation Curves of Alon and other Fibers

is removed continuously and passed into a special recovering apparatus. Since the pretreated staple has been dried as completely as possible before acetylation, there is only a slight loss of acetic anhydride consumed by the water left in the staple. In addition, acetylated staple takes away little acetic anhydride and acetic acid. The catalyst contained in the staple is almost completely recovered after the acetylation.

Considering various properties and conditions, the present Alon has a 50% acetyl value but it is planned to produce triacetate, if experiments show that such improvement is desirable. The vapor phase acetylation process does not lower the DP of the acetylated cellulose. For example, the DP of the special high tenacity rayon is 380 while the DP of Alon remains about 340. The fiber strength is the same before and after the acetylation, but with the increase in denier the strength of the Alon per denier will be about 2/3 of that of the original rayon.

ance to high temperatures is in blends with some of the synthetics which require high temperature dyeing for optimum results.

Effects of Chemicals. On exposure to hydrochloric acid at room temperature of 10 minutes, Alon is resistant in dilute concentrations but is degraded by concentrated sulphuric or hydrochloric acids. In strong alkaline solutions hydrolysis takes place, making it necessary to avoid such solutions in finishing operations. Resistance to organic solvents, such as acetone, trichlorethylene, ethyl acetate and similar compounds is excellent, although there is slight swelling in acetone and methylene chloride. The latter is a solvent for triacetate.

Shrinkage. Alon exhibits very little swelling or shrinkage when wet, even at elevated temperatures. Dimensional stability of finished woven fabrics is excellent.

Fatigue Life. At 5% elongation, Alon is reported to have a fatigue life between that of Orlon acrylic fiber and wool. At 8% elongation it is superior to ordinary acetate in this respect. Fatigue life is defined as the number of repeated stress-strain cycles which the fiber will withstand without rupture and is considered related to the endurance of a fabric.

Wear Resistance. Relatively high energy absorption characteristics of the fiber indicate good wear resistance.

Compressibility. Laboratory tests of 3-denier fibers and 64's quality wool show Alon to be superior to ordinary acetate but inferior to Orlon acrylic fiber and wool.

Identification and Analysis. Du Pont Fiber Identification Stain No. 4 imparts an Orange color to Alon, similar to that obtained with ordinary acetate. For quantitative analysis, the use of density gradient methods is suggested.

Fiber and Fabric Processing

Spinning. It is reported that spinnability by cotton, worsted, or woolen systems is superior to many of the known synthetics, the normal oil finish eliminating any static problems. When stock dyed, the addition of an anti-static lubricant is recommended. Fine denier staple can be spun in counts as high as 60's.

Weaving. No special problems are encountered in weaving. Constructions should allow for fabric shrinkage of 1-2% in hot air or steam.

Dyeing. Dyeing is similar to ordinary acetate with disperse and azoic dyestuffs. Wash fastness and gas gading of disperse dyes are similar to what is obtained on ordinary acetate. Selected disperse dyes can provide better wash and light fastness. Azoic colors are suggested for yarn dyeing in black, dark blue and red. High temperature scouring prevents creases in dyeing and sodium chloride is suggested for bleaching.

Finishing. Alon's high heat resistance permits a wide latitude of finishing operations with no difficulty. Durable creases or pleats may be set in woven fabrics by conventional methods. Resin finishes are not required to impart crease-resistance or dimensional stability to Alon fabrics. Many of the 100% Alon constructions, however, as well as some of those containing blends with other fibers are finished with 2 or 3% of urea or melamine formaldehyde resins or polyvinyl acetate to provide a firmer hand. While the resistance to washing of most of these finishes is not too good, it is reported that progress is being made in developing other finishing agents with greater durability. The small quantities of resin presently employed are said to result in no significant loss of abrasion resistance or reduction in fabric serviceability.

Economics and Outlook

Current output is limited to 2, 2.3, 3, 4.5 and 7.5 denier bright and semi-dull staple, available in any cut length desired. However, it is anticipated that if the demand warrants it, tow will be offered in the near future. Experimental work is also being carried out in the acetylation of yarns and woven fabrics. The present price of Alon staple in Japan is the equivalent of 61¢ per pound as compared with 47¢ for acetate and \$1.11 for acrylic staple. Since the properties of Alon are superior to those of conventional acetate and approach those of acrylics in some respects, it is believed that this new fiber can fill an important need in the Japanese market. The producer is confident of the fact that as output and demand increase, Alon can be sold at a profit in that country for less than acetate.

Of particular interest is the fact that a plant to

produce about 15 million pounds annually, including acetic anhydride manufacturing equipment but excluding the cost of the rayon manufacturing plant, is estimated to be under \$3 million. Including the cost of a rayon staple plant, the initial investment per pound of fiber is reported to be below that required for producing conventional acetate staple. At the same time, there are eliminated some of the problems associated with solvent spinning and recovery. Since the Toho Rayon Co., Ltd. is presently engaged in the manufacture of rayon staple, this development appears to represent a sound investment economically as well as an important technological achievement.

It is expected that further improvements will be made through the use of better rayon staple and more efficient acetylation techniques. At present, the rayon staple being used has a dry tenacity of about 4 grams per denier and a wet tenacity of about 3 grams per denier. If staple with a tenacity of 5 grams per denier becomes available, Alon tenacities are expected to reach 3.3 grams per denier dry and 2.7 grams per denier wet. Improved elastic recovery properties may also be obtained.

In summarizing, we recognize in the development of Alon a unique process for the manufacture of what is essentially a high-tenacity acetate with added features of somewhat superior elastic recovery, resistance to flex and abrasion and a lower moisture regain, with heat-resistance not unlike that of rayon or cotton. The high tenacity affords the opportunity to spin yarns of fairly fine counts, broadening the outlet for woven apparel fabrics while retaining many of the desirable features of conventional acetate.

Discussion

After Mr. Goldberg had read his prepared paper, there was a question-and-answer period during which he answered questions submitted by members of the audience. The following is a summary of some of the questions and his answers.

HOWARD ELSOM (Celanese Fibers Co.): Does Alon have good wash and wear properties?

GOLDBERG: In wash and wear properties, Alon may be a little superior to conventional acetate in that it has a slightly lower moisture pickup and regain.

CHARLES FOWLER (textile consultant): How does it compare with Du Pont Orlon acrylic fiber with regard to permanent pleatability?

GOLDBERG: Judging by the characteristics of the fiber, my guess would be that its permanent pleating properties would be superior to ordinary acetate and inferior to Arnel Triacetate fiber and the acrylics.

DAVID ROGOFF (U.S. Testing Co.): What effect do chlorine bleaches have on Alon?

GOLDBERG: I would judge that the effect of chlorine bleaches would be no different than on ordinary acetate, possibly a little bit better. The technical literature appears to be silent on this question.

F. S. EICHELBAUM (Novelty Fabrics Corp.): Is the yarn commercially available in the United States?

GOLDBERG: The fiber is commercially available from Star Woolen Co., Cohoes, N. Y. The price is about 80 cents a pound.

H. M. STRUB (Duplan Corp.): Is the fiber available in continuous filament form?

GOLDBERG: It is not available at present although experimental work has been done in Japan on continuous filament Alon.

TEXTILE

— NEWS BRIEFS

Quality Control Course

A statistical quality control short course will be held in the School of Textiles at North Carolina State College, Raleigh, N. C., on May 2-13. The 10-day course will include the statistical approach to textile quality control as well as practical applications of these techniques to routine quality problems of the textile industry. Persons wishing to enroll should write directly to the school.

New Cellulosic Fiber Named

American Viscose Corp. will identify its new "inherently stable" cellulosic fiber, known as Fiber 40 in its early development, under the trademark "Avril." The new fiber will be in commercial production by mid-summer. American Viscose's Fibers Division indicated that use of the name Avril will be confined to fabrics made with this fiber, either 100% or in blends, which meet the producer's quality control standards. *For further information about Avril write the editors.*

Solution-Dyed Acrilan

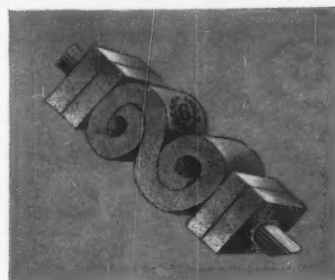
Chemstrand Corp. has announced development of a process to solution-dye its Acrilan acrylic fiber. The company also reported solution-dyed Acrilan will be initially introduced in the hosiery industry in a complete line of hosiery colors by J. P. Stevens & Co., which assisted in spun yarn evaluation and development. Price of solution-dyed fiber will be \$1.48, with initial sale of solution-dyed Acrilan yarns to the hosiery trade made through Steven's Yarn Sales Department.

Von Bergen Gets Award

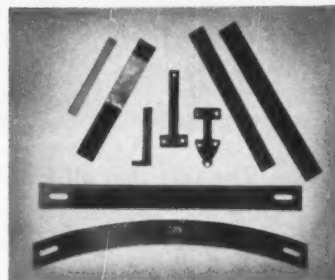
Werner von Bergen, associate director of research for J. P. Stevens & Co., is the 1960 recipient of the Harold DeWitt Smith Memorial Medal given by Committee D-13 of the American Society for Testing Materials. The medal was presented to him at the Sheraton-Atlantic Hotel, New York City, on March 3. The medal, donated by the Fabric Research Laboratories, Inc., is a testimonial to the memory of Mr. Smith, who pioneered in the engineering approach to evaluation and utilization of textile fiber properties. Von Bergen has had a distinguished career in textiles beginning with his graduation from the Technical College of Burgdorf, Switzerland, as a chemist in 1916.

GARLAND

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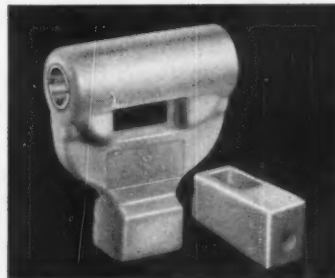
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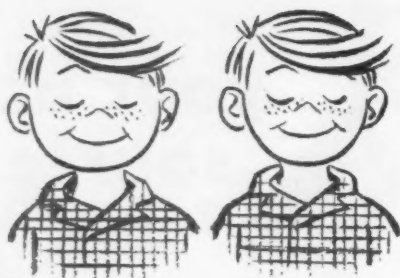
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LOOK-ALIKES...

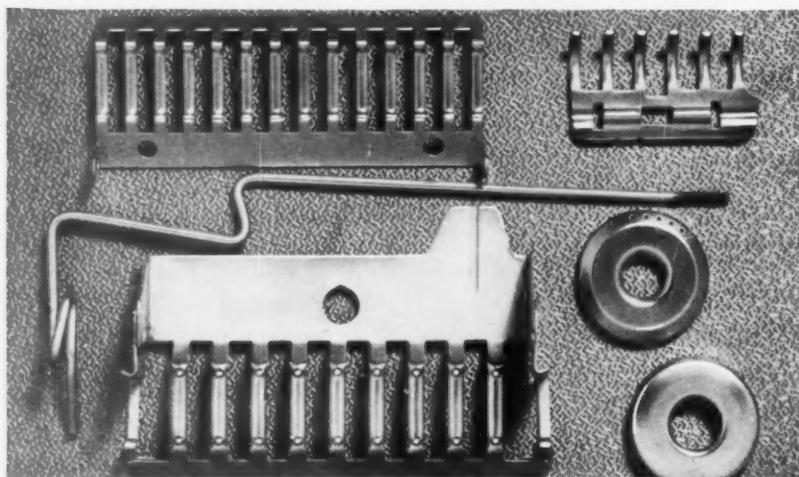


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Relocate Laboratory

The main office and laboratory of Skeist & Schwarz Laboratories have been established at 101 W. 31st St., New York City. The original location at 89 Lincoln Park, Newark, N. J., will continue as a branch office and laboratory. Dr. Eugene W. K. Schwarz announced the following personnel appointments: Henry J. Rynkiewicz, laboratory director; Dr. Reinhard Eck, research associate, and Henry C. Speel as associate. The firm conducts a consulting service, and specializes in plastics, adhesives and fiber technology, and textile dyeing and finishing chemicals.

Rug Finishing Service

Lustrelizing Corp. of America is now offering rug manufacturers a new commercial finishing service, known as Lustrelizing. The service is an electrifying process for the treatment of rugs up to 20-foot width to give a higher pile, increased luster, and improved color and finish. Lustrelizing reported that its fiber-straightening and polishing process was formerly limited to the treatment of fabrics for achieving luxury effects and fur-like simulations. *For further information write the editors.*

Book on ASTM Standards

The many American Society for Testing Materials' standards developed by Committee D-13 on Textile Materials, with related information, are contained in a 924-page, hard cover book, "Compilation of ASTM Standards on Textile Materials, D-13." The standards provide methods of tests, tolerances within which textiles must come and specification requirements. The latest edition contains 134 standards of which 23 are new, revised or have had their status changed recently. Copies may be obtained at \$8.50 each from ASTM headquarters, 1916 Race St., Philadelphia 3, Pa.

Time Study Manual

The Southern Textile Methods and Standards Association is sponsor of "Time Study Manual for the Textile Industry," edited by Norbert Lloyd Enrick, Institute of Textile Technology. This work is designed as a study, reference and training aid for standards and methods men on the principles and practice of time study, with special consideration of problems of continuous processing and machine-operator cycles as encountered in textile mills.

It represents the practical knowledge and experience of 27 contributors, members of the Southern Textile Methods and Standards Association. Hard Covers; illustrated; 216 pages; \$6.50.

MODERN TEXTILES MAGAZINE

Readers may order the book directly from Interscience Publishers, 250 Fifth Ave., New York 1, N. Y.

Personnel Notes

D. Jack Davis has been appointed area manager for market research at Dow Chemical Co.'s New York City fibers sales office.

Robert Spalding Sides has joined the Du Pont Co. as a member of the dresswear merchandising group of the Textile Fibers Department, and **Marcus D. Haney** has been named assistant manager of the southern district office of Du Pont's Dyes and Chemicals Division.

Charles Kloss and **Hans Beckendorf** have become technical demonstrators at Putnam Chemical Corp., Beacon, N. Y. and **Arthur S. Davis** has been appointed manager of the company's technical service laboratory. **Jack Moss** has joined Putnam as technical sales representative for the New England territory.

Met R. Poston has been elected assistant secretary of American Enka Corp.

Talbot Rantoul has joined Roxbury Carpet Co., Saxonville, Mass. as director of products.

Anthony P. Vellucci has been appointed to the staff of the Application and Sales-Service Laboratories of Merto-Atlantic, Inc.



William M. Shine

William M. Shine has been appointed vice president of Celanese Development Co., division of Celanese Corp. of America.

Jack B. Carpenter, Jr. has become technical sales representative covering Virginia and North Carolina for Polymer Southern, a division of Polymer Industries, Inc.

Paul L. Oertel has been appointed manager of advertising and **James P. Foley**, manager of publicity for the National Aniline Division of Allied Chemical Corp. In the same division **Anton Viditz-Ward** has become technical service specialist for textile dyes.

W. J. Morton has joined the sales force of Althouse Chemical Co. to

(Continued on Page 63)

COTTON	ACETATE	VINYON
WOOL	NYLON	SARAN
SILK	ORLON*	POLYETHYLEN
FLAX	DACRON*	VICARA*
RAYON	ACRILAN*	GLASS
FORTISAN*	TEFLON*	DYNEL
POLYPROPYLENE		CAPROLAN
CRESLAN*	ARNEL	WOOL
	RAN	VEREL*
	HH	DARVAN
		SIL
		ZE



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U. S. MAN-MADE FIBER PRICES

This schedule lists the prices of yarns, staple and tow as reported by the producers in March 1960. All prices are given as subject to change without notice.

CELLULOSIC YARNS ACETATE

American Viscose Corp.

Current Prices

Effective March 1, 1960

Denier & Filaments	Bright and Dull Intermediate Twist**			Spinning Twist		
	Cones	Beams	Warps	Cones & C-Tubes	Beams	Warps
40/11	\$.94	\$.92	\$.95	\$.88	\$.85	\$.83
45/14						
55/14-20	.94	.92	.95	.88	.85	.83
75/18	.90	.88	.91	.84	.81	.79
75/20	.86	.84	.87	.80	.77	.75
100/28	.77	.75	.78	.71	.68	.66
120/32						
150/36	.69	.68	.70	.64	.61	.59
150/41	.65	.64	.66	.61	.58	.56
200/54						
240/80	.61	.60	.62	.57	.54	.52
300/80						

* Tricot Spools Only.

** Standard Twist 2 $\frac{1}{2}$ additional.

Fiber S (Sanitized) 5c additional.

Terms: Net 30 Days.

Celanese Fibers Company

Current Prices Effective February 26, 1960

Denier and Filaments	Bright & Dull Intermediate Twist			Spinning Twist		
	4 & 6-Lb. Cones	Beams	4-Pound Cheeses	Cones	Beams	0 Twist Tubes
45/13	\$1.07	\$1.08				
55/15	.94	.91		.84	.85	.74
75/20	.90	.87		.80	.81	.72
75/50	.92	.93		.87	.88	.79
100/26-40	.86	.87		.80	.81	.72
120/40	.77	.78		.71	.72	
150/40	.69	.70	.69	.64	.65	.61
200/52	.65	.66		.61	.62	
240/80	.63			.59		
300/80	.61	.62		.57	.58	.55
450/120	.61	.62		.57	.58	
600/160	.60	.61				
900/240	.58	.59				.56
3 to 5 turns on Cones or Beams			\$.02 Additional			
Over 5 Turns			\$.03 Additional per Turn			
150 Denier 12-TM Tubes			\$.68			
3-Pound Cheeses			\$.01 Less Than 4-lb. Cheeses			
2-BU and 4-BU Tubes			Same Price as 4 and 6-lb. Cones			
Part Cone Premiums: 2-lb.			\$.05			
1-lb.			\$.10			
Under 1-lb.			\$.20			

Celaperm Filament Yarn Prices

Denier & Filament	Intermediate Twist			Spinning Twist		
	4 & 6-Lb. Cones	Beams	Cones	Beams	Zero Tubes	
55/15	\$1.32	\$1.33	\$1.26	\$1.27		
75/20	1.29	1.30	1.23	1.24		
100/26	1.23	1.24	1.17	1.18		
120/40	1.14	1.15	1.08	1.09		
*150/40	1.06	1.07	1.01	1.02		
200/104	1.00	1.01	.96	.97		
300/80	.96	.97	.92	.93		
450/120	.94	.95	.90	.91		
600/160	.92	.93				
900/240	.89					
4000/200					.88 Red C20 only	

* 150/2Z/40 available in all colors. Contact our District Sales Representative for current availability of colors in other deniers.

3 to 5 Turns on Cones or Beams—\$.02 Additional

Over 5 Turns —.03 Additional per Turn.

Celaperm Black Yarn Prices

Effective March 11, 1955

Denier & Filaments	Intermediate Twist			Spinning Twist			LTD 4-BU Tubes
	4 & 6-Lb. Cones	Beams	Cones	Beams	Cones	Beams	
55/15	\$1.12	\$1.13	\$1.06	\$1.07			
75/20	1.09	1.10	1.03	1.04			
100/26	1.03	1.04	.97	.98			
120/40	.94	.95	.88	.89			
150/40	.86	.87	.81	.82			
200/52	.80	.81	.76	.77			
300/80	.76	.77	.72	.73			
450/120	.74	.75	.70	.71			
600/160	.72	.73					
900/80	.69						
4000/200							.68

3 to 5 Turns on Cones or Beams—\$.02 Additional

Over 5 Turns —.03 Additional per Turn.

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlabeled items can be obtained upon request.

Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Acele" Acetate Bright & Dull

Denier & Filament	Zero Twist		Low Twist		Intermediate Twist			
	Tubes	Beams	Cones	Beams	2 & 4 Lb. 5/8" Tbs.	4 & 6 Lb. 1" Tbs.	Cones	Beams
40-13	\$1.06	\$1.13						
45-13	.94	1.02		\$1.11				
55-18	.82	.86		.91			\$.99	\$1.00
55-24	.82	.86		.91			.99	.98
75-24	.79			.80		\$.93	.95	.97
75-50				.82		.95	.97	.98
100-32	.77	.35		.86		.89	.91	.91
120-50	.73	.76		.77		.81	.82	.83
150-40	.66	.69	\$.69	.70	.74	.74	.74	.75
200-60/64	.65		.66	.67	.70	.70	.70	.71
240-80			.65				.69	
300-80	.60	.62	.62	.63	.66	.66	.66	.67
450-120	.61		.62	.63	.66	.66	.66	.67
600-160					.65		.65	.66
900-44					.63		.63	.64
900-240	.61				.63		.63	.64
1800-88					.61		.61	.62
2700-132					.61		.61	.62
3000-210					.61		.61	.62

(A) Regular Twist (2.9 and 5 T.P.I.)—add \$.02 to Intermediate Twist Price.

(B) 1 lb. 5/8" Tubes—add \$.02 to 2 & 4 lb. 5/8" Tube Price.

Color-Sealed

Denier & Filament	Zero Twist		Low Twist		Intermediate Twist			
	Tubes	Beams	Cones	Beams	2 Lb. 5/8" Tbs.	4 & 6 Lb. 1" Tbs.	Cones	Beams
55-18	\$1.245	\$1.315		\$1.32	\$1.35	\$1.37	\$1.37	\$1.38
75-24	1.16	1.26		1.29	1.32	1.34	1.34	1.35
100-32	1.14			1.23	1.26	1.28	1.28	1.29
150-40	1.03	1.06	1.06	1.07	1.10	1.11	1.11	1.12
200-64	1.00			1.02	1.04	1.05	1.05	1.06
300-80	.95	.97		.98	1.00	1.01	1.01	1.02

(A) Regular Twist—Add \$.02 to Intermediate Twist Price.

Black

Denier & Filament	Zero Twist		Low Twist		Intermediate Twist			
	Tubes	Beams	Cones	Beams	2 & 4 Lb. 5/8" Tbs.	4 & 6 Lb. 1" Tbs.	Cones	Beams
40-13	\$1.215	\$1.285						
55-18	1.045	1.115		\$1.12	\$1.15	\$1.17	\$1.18	
75-24	.98	1.08		1.09	1.12	1.14	1.15	
100-32	.94			1.03	1.06	1.08	1.09	
150-40	.83	.86	.86	.87	.91	.91	.92	
200-60	.80	.81	.82	.83	.85	.85	.86	
300-80	.75	.77	.77	.78	.81	.81	.82	
450-120		.76	.79	.79	.79	.79	.80	
600-160		.74	.77	.77	.77	.77	.78	
900-240, 44		.74	.74	.74	.74	.74	.75	

(A) Regular Twist (2.9 and 5 T.P.I.)—add \$.02 to Int. Twist Price.

(B) 1 lb. 5/8" Tubes—add \$.02 to 2 & 4 lb. 5/8" Tube Price.

Specialty Yarns

Type 20 Same Price as Regular Yarn

Type C Same Price as Regular Yarn

Thick & Thin

Denier & Filament	Natural		Black		Color-Sealed	
	Cones	Beams	Cones	Beams	Cones	Beams
200-64 Int. Twist	\$1.05	\$.99	\$1.15	\$.99	\$1.35	
200-64 Reg. Twist	1.08	1.09	1.17	1.21		

Terms: Net 30 days. Subject to changes without notice.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

* Dupont's Trademark for its acetate yarn.

Eastman Chemical Products, Inc.

Tennessee Eastman Co.

Effective March 13, 1959

"Estron" Yarn, Bright or Dull — White

Denier & Filament	Regular Twist		Intermediate Twist		Low Twist		Zero Twist		Tricot Beams	
	Cones	Beams	Cones	Beams	Cones	Beams	Tubes	Spun Twists	Zero Twist	
55/13	\$1.01	\$1.02	\$0.99	\$1.00	\$0.93	\$0.94	\$0.82	\$0.87	\$0.86	
75/19	.97	.98	.95	.96	.89	.90		.90		
75/49	.99	1.00	.97	.98						
100/25	.93	.94	.91	.92	.85	.86				
120/30	.84	.85	.82	.83	.76	.77				
150/38	.76	.77	.74	.75	.69	.70	.66			
200/50	.72	.73	.70	.71	.66	.67				
300/75	.68	.69	.66	.67	.62	.63	.60			
450/114	.68	.69	.66	.67	.62	.63				
600/156	.67	.68	.65	.66	.62	.63				
900/230	.65	.66	.63	.64			.61			
Heavier							.56			

Current Prices—December 19, 1955

"Chromspun"—Standard Colors (Except Black)

Denier & Filament	Regular Twist Cones	Regular Twist Beams	Intermediate Twist Cones	Intermediate Twist Beams	Low Twist Cones	Low Twist Beams
55/13	\$1.39	\$1.40	\$1.37	\$1.38	\$1.31	\$1.32
75/19	1.36	1.37	1.34	1.35	1.28	1.29
100/25	1.30	1.31	1.28	1.29	1.22	1.23
150/38	.....	.....	1.11	1.12	1.06	1.07
300/75	.....	.....	1.01	1.02	.97	.98
450/114	.....	.....	.99	1.00	.95	.96
900/230	.....	.....	.94	.95	.....	.....

Current Prices

"Chromspun"—Black

Denier & Filament	Regular Twist Cones	Regular Twist Beams	Intermediate Twist Cones	Intermediate Twist Beams	Low Twist Cones	Low Twist Beams
55/13	\$1.19	\$1.20	\$1.17	\$1.18	\$1.12	\$1.13
75/19	1.16	1.17	1.14	1.15	1.09	1.10
100/25	1.10	1.11	1.08	1.09	1.03	1.04
150/38	.93	.94	.91	.92	.87	.88
300/75	.87	.88	.85	.86	.82	.83
450/114	.81	.82	.81	.82	.78	.79
900/230	.76	.77	.74	.75	.76	.....

Prices are subject to change without notice.

Prices on special items quoted on request.

Terms: Net 30 days. Payment—U. S. A. dollars.

Transportation charges prepaid or allowed to destination in continental United States except Alaska. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.

* "Eaton" is a trade-mark of the Eastman Kodak Company.

* Chromspun is a trade-mark of the Eastman Kodak Company.

RAYON

American Bemberg

Current Prices

Regular Production Reel Spun Yarn									
Den/Fil	No Turn Skeins	Turned* Skeins & Cones	8 1/2 Turns	12 Turns	15 Turns	18 Turns	20 Turns	22 Turns	24 Turns
40/30	\$1.40	\$1.95	.....	.....	.....	.....	.....	.....	.....
50/36	1.29	1.55	.....	.....	.....	.....	.....	.....	.....
65/45	1.22	1.38	.....	\$1.61	.....	.....	.....	.....	.....
75/60**	1.11	1.25	.....	1.48	\$1.53	1.56	.....	.....	.....
100/74**	1.02	1.15	.....	1.40	1.45	1.51	.....	.....	.....
125/90	1.01	1.12	\$1.16	1.37	.....	.....	.....	.....	.....
150/120	.99	1.08	1.18	1.33	.....	.....	.....	.....	.....
300/225	.....	1.01	.....	.....	1.14	.....	.....	.....	.....
900/744	.....	.91	.....	.....	.....	.....	.....	.....	.....
1800/744	.....	.91	.....	.....	.....	.....	.....	.....	.....

* Turn includes twists up to 6 turns on 40 and 50 denier, and up to 5 turns on heavier deniers.

** Spun Dyed Cupracolor Black 15¢ per lb. extra.

"44" HH Spool Spun Yarn									
Den/Fil	No Turn Tubes	No Turn Beams	5 Turn Beams	5 Turn Cones	12 Turn Beams	12 Turn Cones	15 Turn Beams	15 Turn Cones	18 Turn Cones
40/30	\$1.35	\$1.35	.....	.....	.....	.....	.....	.....	.....
50/36	1.05	1.05	.....	.....	.....	.....	.....	.....	.....
65/45	1.13	.....	.....	.....	.....	\$1.50	.....	.....	.....
75/45*	1.04	.....	\$1.15	\$1.15	\$1.38	1.38	\$1.46	.....	.....
100/60*	.96	.....	1.10	1.10	1.30	1.30	1.38	.....	.....
125/90	.91	.....	1.06	1.06	.....	.....	.....	.....	.....
150/90*	.83	.....	.87	.87	1.21	1.21	1.30	.....	.....
150/120	.87	.....	.99	.99	.....	.....	.....	.....	.....

* Available also in Spun Dyed Cupracolor Black at 15¢ per lb. extra.

"44" HH "Parfe" Spool Spun Yarn									
Den/Fil	No Turn Cones	5 Turn Cones	5 Turn Beams	12 Turn Cones	12 Turn Beams	15 Turn Cones	15 Turn Beams	18 Turn Cones	18 Turn Beams
50/36	\$1.60	\$1.85	\$1.85	.....	.....	.....	.....	.....	.....
75/45	1.48	1.58	1.58	1.78	1.78	1.88	1.88	.....	.....
100/60	1.38	1.48	1.48	1.68	1.68	1.78	1.78	.....	.....
150/90	1.21	1.28	1.28	1.63	1.63	1.73	1.73	.....	.....
300/120	1.21	1.28	.....	.....	.....	.....	.....	.....	.....

Nub-Lite (Short Nubbi)

Code	Den/Fil	2 1/2 Turn Natural Cones	2 1/2 Turn Cones*	5 Turn Natural Cones	5 Turn Cones*
1515	160/90	.....	.....	\$1.50	\$1.40
1519**	155/90	.....	.....	1.50	1.40
2006	200/120	.....	.....	1.11	1.01
3002	315/180	\$1.15	\$1.05	.....	.....
4011	410/224	1.15	1.05	.....	.....
6001	600/360	1.13	1.03	.....	.....
8001	860/450	1.13	1.03	.....	.....

* Basic price for cones when dyed. Dyed Colors 30 and 35 cents above basic price. Prices based on 200 lb. dyed lots only. Prices for natural yarn skeins same as natural cone prices.

** Code 1519 can be run in warp or filling.

CUPIONI Type B				
Code	Den/Fil	2 1/2 Turn Cones	2 1/2 Turn Cones*	5 Turn Cones*
9650	70/45	.....	.....	\$1.69
9660	100/60	.....	.....	1.53
1545	150/90	.....	.....	1.30
9730	285/135	.....	.....	1.15
9782	450/225	.....	.....	1.15
9814	600/372	.....	.....	1.12
9837	940/372	.....	.....	1.02

"Spun Dyed Cupracolor is spun 150, 285, and 940 deniers at 35¢ per pound extra. Cupracolor Black Comes in all deniers."

STRATA SLUB				
Code	Den/Fil	Turned Cones	3 1/2 Turns	Price
9747	275/225	.....	3 1/2	\$1.25
9798	450/372	.....	2 1/2	1.15
9823	600/372	.....	2 1/2	1.10
9847	960/372	.....	2 1/2	1.02
9885	1290/372	.....	1 1/2	1.00
9934	2680/744	.....	1 1/2	1.00

"Spun Dyed Cupracolor is spun in 600 and 960 deniers at 35¢ per pound extra."

FLAIKONA

Code	Den/Fil	Turned Cones	Price
9699	150/148	2 1/2	\$1.35
9769	300/224	2 1/2	1.25
9782	450/270	2 1/2	1.05
9809	600/360	2 1/2	1.05
9840	900/450	2 1/2	1.00
9924	2000/744	2 1/2	.95

"Spun Dyed Cupracolor Black 35¢ per pound extra."

Terms: Net 30 days, F. O. B. shipping point. Minimum freight allowed to consignee's nearest freight station east of the Mississippi River. To points west of the Mississippi River minimum freight allowed to Memphis, Tennessee. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F. O. B. delivery point.

Prices are subject to change without notice.

American Enka Corp.

Current Prices

Effective February 29, 1960

Standard Quality Yarns

NATURAL									
		Weaving			Skeins				
Den/Fil	Luster	Cones	Beams	Long	Short	Cakes	Knitting	Cones	
50/18	E	5 S	.....	.....	.....	.....	.....	1.63	.....
50/20	B	4 S&Z	.....	.....	.....	.....	.....	1.52	1.64
75/10	B	3 S&Z	.....	.....	.....	.....	.....	1.02	.....
75/18	E	4 S	.....	.....	.....	.....	.....	1.14	.....
75/30	B	2.5, 4S&Z	1.14	1.14	1.32	1.41	1.02	1.14	1.14
75/30	B	8 S	1.24	.....	1.49	1.59	1.12	1.24	1.24
75/45	P,E	2.5, 4, 5S&Z	1.14	1.14	1.32	1.41	1.02	1.14	1.14
75/60	B,P	3, 4 Z	1.16	.....	.....	.....	.....	1.04	.....
100/14	B	3 S&Z	.....	.....	1.15	1.23	.90	.....	.....
100/40	B,E	12 S&Z	.....	.....	.....	.....	.....	1.20	.....
100/40	B,P,E	4, 5 S&Z	.....	.98	.....	.....	.80	.98	.....
100/40	B	6 S	1.17	.....	1.34	1.44	1.09	.....	.....
100/40	B,P	2.5, 4S&Z	.98	.98	1.15	1.23	.90	.....	.....
100/60	E	4 S&Z	1.00	1.00	.....	.....	.92	.....	.....
100/60	E	3 Z	.....	.....	.....	.....	.87	.90	.....
125/40	B,P	3 S	.96	.96	.....	.....	.....	.....	.....
125/50	B,E	0	.745	.....	.....	.....	.....	.....	.....
150/40	B,P,E	2.1, 3S&Z	.82	.82	.96	1.03	.78	.82	.....
150/40	B,E	5 S&Z	.90	.90	1.15	1.25	.86	.....	.....
150/40	B,E	8 S&Z	.95	.95	1.20	1.30	.91	.....	.....
150/90	E	2.1 S&Z	.83	.83	.....	.....	.79	.....	.....
200/40	B	2.1 S	.81	.81	.94	1.01	.77	.....	.....
200/40	P	3 Z	.....	.....	.94	1.01	.77	.81	.....
250/60	P,E	2, 4 Z	.....	.....	.93	1.00	.77	.80	.....
300/30	E	3 Z	.81	.85	.....	.....	.....	.....	.....
300/40	B	3, 2 Z	.73	.76	.....	.....	.....	.....	.....
300/50	B,E	3 S	.73	.76	.....	.....	.....	.....	.....
300/60, 120	B,P,E	2.1 S&Z	.73	.73	.82	.89	.71	.73	.....
300/60	B	3, 5 S	.73	.73	.82	.89	.71	.....	.....
300/60	B	6 S	.86	.86	.....	1.00	.84	.....	.....
300/60	B	8 S	.88	.88	.....	.....	.86	.....	.....
300/120H.T.	B	2.5 S	.75	.75	.....	.....	.73	.....	.....
300/40H.T.	B	3 Z	.85	.....	.....	.....	.83	.....	.....
450/60	B	3 S	.69	.71	.....	.....	.67	.....	.....
450/80	B,E	3 S	.69	.71	.78	.85	.67	.....	.....
600/80	B,E	3 S	.73	.75	.....	.....	.....	.....	.....
600/120	B,E	3 S	.69	.71	.78	.85	.67	.....	.....
900/120	B	3, 4 S	.69	.71	.78	.85	.67	.....	.....
900/120H.T.	B	3, 4 S	.71	.71	.....	.....	.69	.....	.....

B = Brigo

P = Perigo (Semi-Dull)

E = Englo (Dull)

H.T. = High Tenacity

Jetspun® (Colored Yarns)									
Den/Fil	Tenacity	Turns	Weaving	Beams	Colors				
100/40	Regular	2.5S	\$1.35	\$1.35	All				
150/40	Regular	2.1S	1.17	1.17	All				
200/40	Regular	8.3S	1.28	1.28	All				
300/40	Regular	3.4S	1.09	1.09	All				
300/120	Regular	2.1S	1.09	1.09	All				
450/80	Regular	3.0S	1.05	1.05	All				
600/80	Regular	3.4S	1.04	1.04	All				
300/40	High	3.4S	1.11	1.11	All				
600/80	High	3.4S	1.07	1.07	All				
900/120	High	3.4S	1.06	1.06	All				

® Registered Trade Mark for American Enka Solution-dyed Rayon Yarn.

Skyloft (Lofted Rayon Filament Yarns)
Natural and Jetspun®

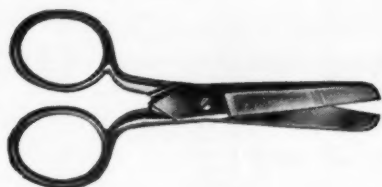
			Cones or Tubes		
Denier	Denier per Filament	Twist	Natural	Black	Other Colors
1000	7.5	3.5S	\$.92	\$1.17	\$1.17
2200	15	3.5S&Z	.67	.77	.84
2700	15	3.5S&Z	.67	.77	.84
4300	15	3.0S&Z	.66	.76	.83
5300	15	3.0S&Z	.65	.75	.82

MILL SCISSORS

(Forged Steel)



No. 100—(Only Size 4")

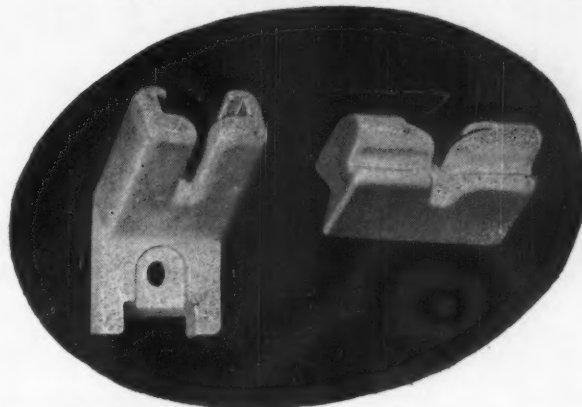


No. 200—(Sizes 3 1/2", 4" and 5")

For over 35 years Collins has been a leading supplier of dependable Mill Scissors to Textile Mills.

COLLINS SUPPLY & EQUIPMENT CO.
1357-97 Monsey Ave. Scranton 2, Pa.

*Modesty is a strange thing—
when you think you've got it you've lost it.*



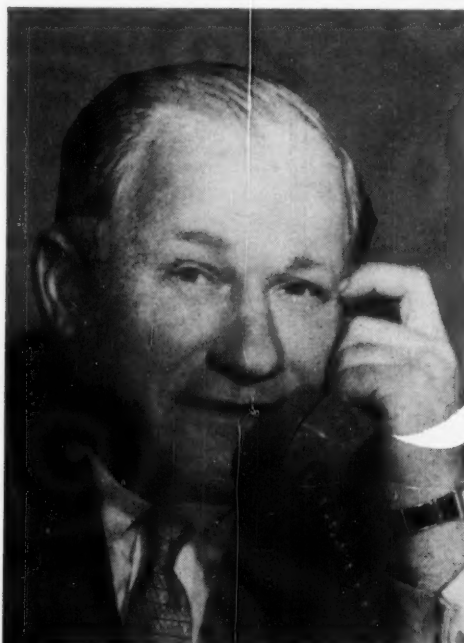
We who manufacture

LAMBERTVILLE THREAD GUIDES

are on guard against false modesty too, but we do take justifiable pride in the high quality of our porcelain guides. They are hard, smooth, long wearing and always accurately made. Every guide is carefully inspected before leaving our plant. Available in white or "Durable" finish.

Lambertville Ceramic
AND MANUFACTURING COMPANY
LAMBERTVILLE, NEW JERSEY

LAMBERTVILLE: YOUR GUIDE TO BETTER OPERATIONS!



With a superbly streamlined plant of 60,000 square feet on one floor containing the latest type of equipment, we are ready to handle the most complicated swatching operations, large or small. This assures you the finest in sample card and swatching quality and service. Your complete job, printing—swatching—binding is done under one roof, under one supervision.

Irving Warsoff
President

RELIABLE SAMPLE CARD CO.

30 Sanford Street, Brooklyn, N.Y.—ULster 5-0202

150 40	Dull	.....	.....	.82	.82	.78
150 90	Dull	.....	.....	.83	.....	.79
200 10-44	Bright	1.01	.94	.81	.81	.77
250 60	Semi-Dull & Dull	1.00	.93	.80	.80	.77
300 15	Bright	.....	.....	.85	.78	.....
300 30	Dull Flat Filament	.....	.....	.73	.85	.....
300 44	Bright & Dull	.89	.82	.73	.73	.....
300 234	Dull	.....	.....	.83	.....	.81
450 60-100	Bright	.....	.78	.69	.71	.67
600 100	Bright & Dull	.....	.78	.69	.71	.67
900 50-100-150	Bright	.....	.78	.69	.71	.67
1200 75	Bright	.....	.78	.69	.71	.....
2700 150	Bright	.....	.78	.69	.71	.....

Extra Turns Per Inch

150 40	Bright 6-Turns	\$1.25	\$1.15	\$.90	\$.90	\$.88
200 44	Bright 6-Turns	.....	1.05	.96	.96	.....
300 15	Bright 5-Turns	.....	.....	.86	.86	.....
300 44	Bright 4.3-Turns	.....	.....	.81	.....	.79
300 44	Bright 6-Turns	.97	.90	.86	.86	.84
300 120	Rayflex 6-Turns	.....	.....	.93	.93	.....
600 30	Bright 5-Turns	.....	.86	.82	.82	.80

Rayflex Yarns

150 40-60	Rayflex	\$	\$	\$.85	\$.85	\$.81
200 75	Rayflex	.....	.....	.84	.84	.80
300 60-120	Rayflex	.....	.....	.75	.75	.73
450 120	Rayflex	.....	.....	.71	.71	.69
600 234	Rayflex	.....	.....	.71	.71	.69
900 350	Rayflex	.....	.80	.71	.71	.69

Thick & Thin Yarns

150 40-90	Bright & Dull	\$	\$	\$1.18	\$	\$
200 75	Bright & Dull	.....	.....	1.08	.....	.....
300 120	Bright & Dull	.....	.....	.98	.....	.....
450 100	Bright & Dull	.....	.....	.92	.....	.....
490 120	Bright & Dull	.....	.....	.98	.....	.....
900 350	Dull	.....	.....	1.03	.....	.....
920 120	Bright & Dull	.....	.....	1.03	.....	.....

Colorspun Yarns

Denier	Type	Cones/Tubes Beams/Spoils
75	Regular Strength	\$1.71
100	Regular Strength	1.35
150	Regular Strength	1.17
200	Regular Strength	1.14
300	Regular Strength	1.09
450	Regular Strength	1.05
600	Regular Strength	1.05
900	Regular Strength	1.05
300	High Strength	1.11
450	High Strength	1.06
900	High Strength	1.06
300	Regular Strength 5-Turns	1.19

Avicron Yarns

Denier	Filament	Singles & 2 Ply	Cones/Tubes Beams/Spoils
1800	100-200	Singles & 2 Ply	\$.68
2700	150-300-980	Singles & 2 Ply	.65

Viscose Filament Yarns

The following material deposit charges are required:		
Metal Section Beams	.....	\$170.00 each
Metal Section Beam Racks	.....	75.00 each
Metal Tricot Spoils—14" flange	.....	30.00 each
21" flange	.....	60.00 each
32" flange	.....	150.00 each
Metal Tricot Spool Racks—14" flange	.....	135.00 each
21" flange	.....	100.00 each
32" flange	.....	75.00 each
Wooden Tricot Spool Crates	.....	20.00 each
Cloth Cake Covers	.....	.05 each
Same to be credited upon return in good condition—freight collect.		

Celanese Fibers Company

Effective June 24, 1959

Viscose Rayon Filament Yarn Prices—Bright and Dull

Denier/Fil/Twist	Beams	Cones	Cakes
75/30/3	.....	1.10	.98
100/40/2Z	.07	.....	.....
100/40/3	.....	.96	.88
100/40/5	.....	1.02	.....
100/60/2Z	NS	.96	.....
100/60/3	.....	.98	.90
125/40/2Z	.....	.93	.....
125/40/3	.....	.94	.85
150/40/0	NS	.74½	.....
150/40/2Z	.....	.81	.....
150/40/3	.....	.79½	.76
150/40/5	.....	.90	.86
150/40/6	.....	.95	.91
150/90/0	NS	.77½	.....
250/60/0	NS	.74	.....
250/60/3	.....	.80	.77
300/50/0	NS	.70	.....
300/50/2Z	.....	.72	.....
300/50/3	.....	.....	.....
450/120/0	NS	.70½	.69
.....	.....	.67	.....

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U. S. A.
Prices subject to change without notice.
All previous prices withdrawn.
Prices on unlisted items can be obtained upon request.
Orders are subject to conditions of sale appearing on our acknowledgments of orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices

Effective with orders June 24, 1959

Bright and Dull

Den.	Fil.	Turns/ Inch Up to	Textile	Beams	Cones (A) Tubes	Cakes
40	20	3	Textile "Cordura"	.....	\$1.97	\$1.02
50	20	3	Textile "Cordura"	.....	1.70	.....
50	20	3	Textile "Cordura"	.....	1.72	1.67
50	35	3	Bright	.....	1.77	.....
75	10	3	Bright	.....	1.02	.....
75	30	3	Bright	\$1.14	1.14	1.02
100	40	3	Bright	.98	.98	.90
100	60	3	Dull	.....	1.00	.92
125	50	3	.....	.96	.96	.87
150	40	3	.....	.82	.82	.78
150	60	3	Bright	.82	.82	.78
150	60	3	Textile "Cordura"	.....	.875	.845
150	90	3	Dull	.....	.83	.....
150	100	3	Dull	.....	.83	.....
300	50	2.5	Textile "Cordura"	.73	.73	.71
300	120	3	.....	.74	.74	.72
450	72	3	.....	.71	.69	.67
600	96	3	Bright	.71	.69	.67
600	240	3	Textile "Cordura"	.72	.70	.....
900	50	3	Bright	.71	.69	.67
900	144	3	Bright	.71	.69	.67
1165	480	3	Textile "Cordura"	.72	.70	.68
1800	100	3	Bright	.....	.69	.....
2700	150	3	Bright	.71	.69	.....

Thick and Thin

100	40	3	#7 Bright	1.42
150	90	3	#7 Bright	1.08
200	80	3	#7 Bright	1.08
450	100	3	#7 Bright	1.08
1100	240	3	#60 Bright	1.03
2200	480	3	#60 Bright	.98

Monofil

150	1	3	Bright	1.35	1.35
300	1	3	Bright	1.15	1.10
600	1	3	Bright	1.00

Plush

300	30	3	Dull	.85	.81
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(A) 2¢/lb. additional for cones less than 3#.

Terms: Net 30 days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

* "CORDURA" and "SUPER CORDURA" are Du Pont's registered trade-marks for its high tenacity rayon yarn.

Industrial Rayon Corp.

Effective June 29, 1959

Continuous Process Textile Yarns

Denier	Fila- ment	Turns per In.	Type	Beams	2.8# Cones	4.4# Cones and Tubes
150	40	2.5"S"	Bright	.82	.82	.....
200	20	2.5"S"	Bright	.81	.81	.....
300	44	2.5"S"	Bright	.73	.73	.....
450	60	2.0"S"	Bright	.69	.....	.69
600	90	1.5"S"	Bright	.69	.....	.69
900	50	2.0"S"	Bright	.69	.....	.69
900	150	2.0"S"	Bright	.69	.....	.69
1100	480	2.0"Z"	Bright extra strong	.66	.....	.66

Lustre #4 is semi-dull.

Prices are subject to change without notice.

Strawn Monofilament

Denier	Fila- ment	Turns per In.	Type	4.4# Cones	Spoils and Tubes
450	1	0	Bright and Dull	1.00	1.05
450	1	2	Bright and Dull	1.00	1.05
1250	1	0	Bright and Dull	1.00	1.05
1250	1	2	Bright and Dull	1.00	1.05

Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges prepaid with transportation allowed at lowest published rate to all points in continental United States except Alaska.

Prices are subject to change without notice.

North American Rayon Corp.

Current Prices

Prices Effective July 3, 1959

Denier/Filament	Twist	Knitting* Cones	No Twist Knitting Cones	Weaving Cones, Velvet Cones, Beams, Untreated Tubes**	Cakes
Normal Strength Yarns — NARCO	.....	.....	.....	.....	.....
75/30	3.5	.....	.....	1.14	1.02
75/30	7	.....	.....	1.37	.....
75/30	12	.....	.....	1.35	.....
75/30	15	.....	.....	1.37	.....
75/30	20	.....	.....	1.40	.....
100/40/60	3.5	.....	.....	.98	.90
100/40	12	.....	.....	1.22	.....
125/25/60	3	.....	.....	.96	.87

21st SOUTHERN TEXTILE EXPOSITION

October 3-7, 1960

9 A. M. to 6 P. M. Monday through Friday

Textile Hall

Greenville, S. C.

350 exhibitors, including major manufacturers of textile machinery, equipment and supplies, will be on hand to demonstrate and explain their products.

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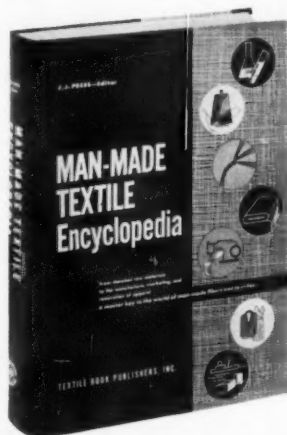
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TEXTILE HALL CORPORATION

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"An institution of the textile industry since 1915"

from chemical raw materials to the manufacture, marketing, and renovation of apparel . . . a master key to the world of man-made fibers and textiles.



Man-Made Textile Encyclopedia, edited by J. J. PRESS, Chief, Textile Branch, U. S. Navy Clothing and Textile Research Laboratory

Just published, the *Man-Made Textile Encyclopedia* has been designed for everyone concerned with fibers and Textiles at every stage—from the polymer scientist to the neighborhood laundry . . . from fiber producer to fabric and clothing designers . . . from mill to dyehouse converter to department store.

The editorial range—covered in 944 abundantly illustrated pages, each 8¼ x 11¼—serves every interest from chemical raw materials to manufacture of fibers, staple, tow and yarn; from weaving and knitting to the design, testing and distribution of apparel and all other end-use products, consumer, military and industrial.

The technical level is attested by the positions the Encyclopedia's 149 contributors hold in education, research, production, administration and marketing within nearly every major company, association and institution concerned with man-made fibers and textiles.

Just published: 944 pages, 8¼ x 11¼

561 illustrations, 370 tables

\$27.50

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Please send _____ copy(s) of the *Man-Made Textile Encyclopedia* at \$27.50 each.

My check _____, Money Order _____, for \$_____ is enclosed.

Name _____

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150/42	0		.74%		
150/42/60	3	.80%		.82	.78
300/75	0		.71		
300/75	3	.73		.73	.71
900/48	2.5	.69		.69	
1800/82	2.5	.69		.69	

* Oiled Cones \$.01 per pound extra for Graded Yarns only.

** 1 lb. Tubes \$.02 per pound extra for Graded Yarns only.

Terms: Net 30 days, F.O.B. shipping point, minimum freight allowed to consignee's nearest freight station east of the Mississippi River. To points west of the Mississippi River minimum freight to Memphis, Tennessee allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point.

Prices subject to change without notice.

TRIACETATE

Celanese Fibers Company

Current Prices

Arnel Yarn Prices

Bright & Dull

Effective August 19, 1958

Denier and Filaments	Cones	Beams	Thick and Thin Cones
55/WKZ/15	\$	\$1.16	\$
55/22/15	1.32	1.33	
75/WKZ/20		1.16	
75/22/20	1.21	1.22	
100/22/26	1.14	1.15	
150/22/40	.95	.96	
200/22/40			
200/22/52	.92	.93	1.25
300/22/80	.87	.88	1.23
450/22/120	.86	.87	
600/22/160	.85	.86	1.21

3 to 5 Turns on Cones or Beams—\$.02 Additional

Premium for Black Arnel—\$.25 Per Pound

Premium for Navy Arnel—\$.37 Per Pound

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

CELLULOSIC HIGH TENACITY YARN and FABRIC

American Enka Corp.

Effective December 19, 1958

Temptra (High Tenacity)

Denier	Elongation	Beams & Cones
1100/480	Low	.60
1230/480	High	.60
1650/720	Low	.53
1820/720	High	.53
2200/960	High & Low	.52

Enka II

*1100/720	Low	.62
*1650/1100	Low	.55
2200/1440	Low & High	.54

Terms: Net 30 days, f.o.b. Enka, North Carolina, or Lowland, Tennessee; minimum freight allowed to first destination east of the Mississippi River. * Tyrex certified viscose yarn.

American Viscose Corp.

Effective Dec. 23, 1959

Tyrex*

Tyrex* Viscose Tire Yarn

Denier	Filament	Twist	Beams	Cones
1100	980	0	.57	.57
1100	980	Z	.57	
1650	1500	0	.50	.50
1650	1500	Z	.50	

Tire Fabric Made with Tyrex* Viscose

Tire Yarn and Cord

Denier	Filament	Carcass	Top Ply	Breaker
1100	980/2	.69	.69	.69
1650	1500/2	Factor Open-525	300-490	115-275
		.59	.60	.625

Factor determined by dividing total ends by picks.

* Tyrex is a collective trade-mark of Tyrex Inc. for Viscose Tire Yarn and Cord.

Rayon Tire Yarn

Denier	Filament	Twist	High Strength (Unslashed)	High Strength	Super "Rayflex"
1100	490	0-Z	....	.56	....
1100	980	0-Z	....	....	.57
1150	490	Z	.56	....	....
1230	490	Z	.56	....	....
1650	980	Z	.49	.49	.49
1650	980	0	....	.49	....
1650	1500	Z	....	....	.50
1650	1500	0	....	....	.50
1875	980	Z	.49	....	.49
2200	980	0	....	.48	....
2200	1500	0	....	....	.49
3300	3000	0	....	....	.49
4400	3000	0	....	....	.49

High Strength available on cones—tubes—beams.

High Strength and Super "Rayflex"

0 Twist—available on 10# cones—beams—10# tubes.

Z Twist—available on beams.

Avisco Bag Twine

Sold by The American Thread Company

1100/980 Super "Rayflex"	0-Z	Cones	.62
1500/980 Super "Rayflex"	0-Z	Cones	.59
1780/980 Super "Rayflex"	0-Z	Cones	.55

Also available in red at .07 premium.

Chafer Yarn

1100/490 High Strength 5Z Twist .60

All yarns sold "Not Guaranteed for Dyeing".

Tire Fabric

Denier	Fila-	Type	Carcass	Top Ply	Breaker
1100	980	Super 120-220-320	.69	.69	.69
1650	980	Super 110-210-310	.58	.59	.615
1650	1500	Super 120-220-320	.59	.60	.625

* Factor determined by dividing total ends by picks.

Cord on cones in regular Tire Yarn twists same as fabric prices.

Other twist combinations—prices quoted on request.

When supplied, yarns and cords in special packages take premiums indicated.

10.5 oz Wardwell Tubes .10

1.5 lb Regular Braider Tubes .06

3.5 lb Tubes .045

The following deposit charges are made on invoices:

Beams \$55.00 each

Crates (Metal) 75.00 each

Fabric Shell Rolls 3.50 each

Same to be credited upon return in good condition—freight collect.

Rayon Tire Yarn and Fabric

Terms: Net 30 days. Seller to select and to pay transportation charges of common and contract carrier except when shipment moves West of the Mississippi River, in which event the actual cost of transportation to the Mississippi River crossing based on the lowest published freight rate, shall be allowed. Title to pass when merchandise is delivered to consignee. Transportation allowance based on lowest published volume rate shall be granted if merchandise is transported from shipping point in vehicle owned or leased and operated by buyer and title to pass when merchandise is delivered to same.

Price subject to change without notice.

Celanese Fibers Company

Effective December 27, 1955

Fortisan Yarn Prices

Denier	Packages	Natural	Black
30/2.5/40	2 lb. Cones	\$3.00 lb.	\$3.35 lb.
60/2.5/80	4 " "	2.40 "	2.75 "
90/2.5/120	4 " "	2.25 "	2.60 "
120/2.5/160	4 " "	2.05 "	2.40 "
150/2.5/180	4 " "	1.95 "	2.30 "
270/2.5/360	4 " "	1.85 "	2.20 "
300/2.5/360	4 " "	1.85 "	2.20 "

Terms: Net 30 days. Shipments prepaid to any destination in U.S.A.

Prices subject to change without notice.

All previous prices withdrawn.

Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

Fortisan-36 Rayon Yarn

Bright

Denier and Filament	Twist	4# cones	8# cones	Tubes	Beams
270/280	0.8Z	\$2.30			
300/280	0.8Z	\$2.05			
300/280	3Z	\$2.20			
400/400	0.8Z	\$1.75			\$1.70
400/400	0			\$1.75	
800/800	0.8Z	\$1.25	\$1.25		\$1.20
800/800	3Z	\$1.40			
800/800	0			\$1.25	
1600/1600	0.8Z	\$1.15	\$1.15		\$1.10
1600/1600	2 1/2 Z	\$1.30			
1600/1600	0			\$1.15	

Terms: Net 30 days. Shipments prepaid to any destination in U.S.A.

Prices subject to change without notice.

All previous prices withdrawn.

Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices

Effective December 23, 1959

"Super Cordura"

Den Fil	Turns/in	All Packages
1100-720	2	.57
1200-720	2	.57
1530-960	2	.59
1600-960	2	.52
1650-1100	2	.50
1800-1100	2	.50
2200-1440	2	.49
2400-1440	2	.49

Terms: Net 30 Days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

* "CORDURA" and "SUPER CORDURA" are DuPont's registered trade-marks for its high tenacity rayon yarn.

Industrial Rayon Corporation

Effective September 21, 1959

Unbleached Bright High Tenacity Yarns

Single End Beams and Cones—Type 100

Denier	Filament	Turns per Inch	Beams	Cones
1100	480	2.0 "Z"	.56	.56
1150	480	2.0 "Z"	.56	.56
1650	720	2.0 "Z"	.49	.49
1725	720	2.0 "Z"	.49	.49
2200	1000	2.0 "Z"	.48	.48
3300	1440	2.0 "Z"	.48	.48
4400	2000	2.0 "Z"	.48	.48

News (Continued from Page 55)

cover the North Carolina and Virginia territory, with headquarters in Greensboro, N. C.

Frederick E. Anderson has become group leader for yarn and fabric development at the Bound Brook, N. J. plant of American Cyanamid Co.'s Fibers Division.

M. L. Fillippeli has become sales representative in the south for Apex Chemical Co.

Royce L. Canada has joined the Louis P. Batson Co. as a textile products representative.



John J. Rieck

John J. Rieck has been appointed director of the Synthetic Fiber Division of Von Kohorn International Corp.

J. F. Miller and **M. J. Perrin** have been promoted to vice presidents of Hartford Machine Screw Co., division of Standard Screw Co.

John P. Snyder has joined James Talcott, Inc. in the company's New Business Development Department of its Factoring Division.

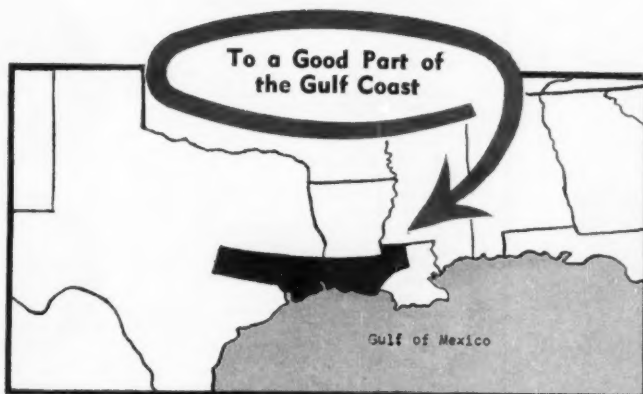
Daniel Shichman has been appointed manager of fiber engineering research at United States Rubber Co.'s research center at Wayne, N. J.

J. Marshall Gayle has joined Watson & Desmond Machinery Co., division of Watson & Desmond, Inc.

Dan Culp Dies

Dan Culp, district sales manager, Greensboro, N. C. sales office of Steel Heddle Manufacturing Co., died Feb. 17 at his home, 202 North Holden Road in Greensboro, after a long illness. He is survived by his wife, Dorothy, and two sons, Dan, Jr., and Dudley. He was associated with Steel Heddle since 1943, having served as superintendent of the shuttle plant and later as shuttle specialty salesman before being transferred to the Greensboro office. He was a graduate of Clemson College, class of 1932.

Let us be your guide . . .



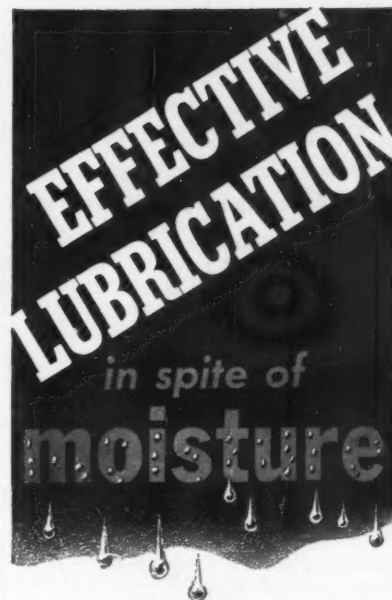
We will gladly provide up-to-date, factual information on markets, resources and plant sites in the Louisiana-Texas area we serve.

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GULF STATES UTILITIES COMPANY

Offices in Baton Rouge and Lake Charles, Louisiana
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Tyrex Tyrex Certified Viscose Tire Yarn

Denier	Filament	Twist	Beams	Cones
1100	720	Z	.57	.57
1650	1100	Z	.50	.50

Terms: Net 30 days f.o.b. point of shipment, title to pass to buyer on delivery of goods to carrier. Domestic transportation charges allowed at lowest published rate to all points in continental United States except Alaska.
PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

North American Rayon Corporation

Effective December 23, 1959

Super Super High Strength Continuous Yarn Type 710	Cones	Beams
1100/720	1.6Z	.57
1650/720	2.0Z	.50
Tire Cord Fabrics		
Super Super High Strength Type 710		Rolls
1100/720		.69
1650/720		.59

Terms: Net 30 days, f.o.b. shipping point. Minimum freight allowed to consignee's nearest freight station East of the Mississippi River. To points West of the Mississippi River minimum freight to Memphis, Tenn. allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold f.o.b. delivery point.
Prices are subject to change without notice.

CELLULOSIC STAPLE & TOW ACETATE

Celanese Fibers Company

Effective March 2, 1959

Staple

(Most Deniers Available in Bright or Dull Luster)

Celanese Acetate Staple	
3, 5.5 & 8 Denier (Regular Crimp, Type HC, Type D)	\$.36
2, 12 & 17 Denier (Regular Crimp, Type HC, Type D)	.37
35 Denier	.38
50 Denier	.40
Type F—5.5 & 8 Denier	.35
Type F—12 & 17 Denier	.36
Type K—(Available under Celanese License Agreement)	.39
% to % length (All Deniers)	.03 (Premium)
35 Denier Flat Filament Acetate	.40
Non-Textile Acetate Fibers	.29*

Tow (Celatow)

3, 5.5 & 8 Denier	\$.37
2, 12 & 17 Denier	.38
35 Denier	.40
35 Denier Flat Filament Acetate Tow	.42
50 Denier	.42

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. east of Mississippi River. Transportation prepaid to any U.S.A. destination west of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

*No transportation allowed (F.O.B. shipping point.)

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

RAYON

American Viscose Corp. Current Prices

Rayon Staple

Regular	Bright and Dull
"Viscose 22"	\$.33
Extra Strength	.33
1.0 Denier	.36
"Avisco XL"	.42
1.0 Denier	.42
1.5 & 3.0 Deniers	.39
"Avisco Crimped"	.36
1.25 Denier	.34
3.0 & 5.5 Deniers	.35
8.0 & 15.0 Deniers	.36
"Avisco Super L"	.36
8.0, 15.0 & 22.0 Deniers	.36

COLORSPUN STAPLE

1.5 Denier 1 9/16"

Color	Code	Price
Sea Foam	517	47¢
Spun Gold	614	47¢
Cascade	419	42¢
Silver Gray	208	42¢
Bridal Rose	710	42¢
Rosewood	835	47¢
Bisque	803	42¢
Champagne	833	42¢
Sandalwood	802	42¢

3.0 Denier 2"

Mint Green	505	47¢
Pale Pink	708	42¢
Bisque	803	42¢
Sandalwood	802	42¢
Gold	603	47¢
Turquoise	408	42¢
Wine	304	59¢
Gray	208	42¢
Spice Brown	800	47¢

Rayon Tow

Grouped Continuous Filaments (200,000 Total Denier)	
1.5, 3.0 & 5.5 Denier Per Filament	.35
9.0 Denier Per Filament	.37
Terms: Net 30 days.	

American Enka Corp.

Current Prices Effective 7/1/59

Rayon Staple

Regular Crimp

1.5 and 3 denier	Brt.	Dull
	\$.33	\$.33
High Crimp		
4.5 denier	.34	
6.5 denier	.34	.34
8 denier	.35	
15 denier	.35	.35

Celanese Fibers Company

Effective May 1, 1959

Rayon Tow

Bright & Dull

1.5, 3, 5.5 D.P.F.	.35
Total denier 200,000	
8 D.P.F.	.37
Total denier 207,000	

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. East of Mississippi River. Transportation prepaid to any U.S.A. destination West of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

Courtaulds (Alabama) Inc.

Effective April 14, 1959

Rayon Staple

1½ and 3 denier	Bright	Dull
Available in 1½", 1-9/16" and 2".	\$.33	\$.33
Crimped Rayon Staple		
3 and 5½ denier	.34	.34
Available in 1-9/16" and 3".		
3 denier		.34
Available in 2".		

Coloray® Solution Dyed Rayon Staple

Color	Price per lb.
Black	39¢
Silver Grey	41¢
Mocha	41¢
Tan	41¢
Medium Brown	41¢
Aqua	42¢
Rose	42¢
Dawn Pink	42¢
Ecrú	42¢
Dark Brown	42¢
Slate Grey	42¢
Sulphur	46¢
Nugget	46¢
Light Blue	46¢
Crystal Blue	47¢
Apple Green	47¢
Sage	47¢
Peacock Blue	48¢
Medium Blue	50¢
Indian Yellow	51¢
Dark Blue	51¢
Hunter Green	51¢
Turquoise	52¢
Malachite Green	53¢
Red	58¢

In addition to the above, Black is also available in:

1½ den. 1½"	5½ den. 3"
3 den. 1½"	5½ den. 6"
3 den. 1-9/16"	

Terms: Net 30 days f.o.b. LeMoyné, Alabama; Minimum transportation allowed to points in U.S.A. east of Mississippi River.

Cross Linked Rayon

Effective April 14, 1959

Man-made, cross-linked, cellulosic staple,	
Bright and Dull, 1½, 3 and 5½ denier	\$.40 per lb.

Topel® Cross-Linked Rayon

Man-made, cross-linked, cellulosic staple,	
Bright and Dull, 1½, 3 and 5½ denier	\$.37 per lb.

Terms: Net 30 days f.o.b. LeMoyné, Alabama; Minimum transportation allowed to points in U.S.A. east of Mississippi River.

The Hartford Fibres Co.

Div. Bigelow-Sanford Carpet Co., Inc

Rayon Staple

Effective November 3, 1958

REGULAR	1.5 denier Bright	1 9/16", 2"
		.33
VISCALON 66 (Crimped)		
	8 denier 3" Bright	.35
	15 denier 3" Bright	.35
	15 denier 3" Dull	.35
"KOLORBON"—Solution Dyed Rayon Staple—3" and 6"		

Winter Now Consultant



Kurt J. Winter

Kurt J. Winter, Ph.D. has established an office as a textile consultant at 230 Park Avenue, New York 17, N. Y. As a consultant his activities are in the field of procurement of specialty fibers and yarns and manufacturing facilities both in this country and abroad, and in the development of knitted and woven fabrics.

Winter retired from United Merchants & Manufacturers in June, 1959. While with United Merchants, which he joined in 1941, he was production manager for the knitting department of the Cohama division, and later assistant to the president and wool and yarn buyer for A. D. Juilliard & Co., after this concern was acquired by United Merchants. Winter holds a Ph.D. degree in chemistry from the University of Vienna. Before joining United Merchants & Manufacturers he was with the Du Pont Co., and Julius Kayser & Co. Winter is first vice president of the American Association for Textile Technology.

"Built-In" Bacteria Inhibitor

American Viscose Corp. has received an exclusive license to use anti-bacterial additives in the manufacture of its rayon and acetate fibers. The company is

also reported to have developed a method for introducing the anti-bacterial chemicals directly into the spinning mixture. American Viscose developed the process in cooperation with Sanitized Sales Co. of America, manufacturer of the anti-bacteria agent.

Fabrics made with the yarn containing the anti-bacterial additive are said to inhibit the growth of bacteria which cause perspiration odor. The bacteriostat additive is reported to be effective through repeated launderings.

First application of the new method was with acetate and currently acetate yarns for lingerie incorporating the bacteriostat are in commercial production. The soft hand of the acetate tricot is said to be unaffected by the addition of the bacteriostat to the fiber; the chemical is said not to irritate the skin.

Experiments are now being conducted to utilize bacteriostats in other fibers produced by American Viscose. For further information write the editors.



The Borregaard Co., Inc.

Norway House, 290 Madison Avenue
NEW YORK 17, NEW YORK

Norwegian Viscose Rayon Staple Fiber

Bright



Dull

Sole Agent For United States, Canada, Mexico, Cuba

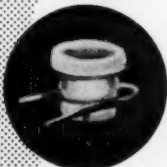
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Man-made fibers and high speeds of today made it necessary to develop guides that will stand up under these conditions. Our "CLOMA" Guides are made from a homogeneous composition that is hard, smooth and uniform, which means less replacement, better quality product. Where tension and wear is a problem, we suggest this type guides.

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LINDSEY L. PHILLIPS, Treasurer, Taunton, Mass.

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JAMES H. CARVER Box 22, Rutherfordton, N. C.
CRAWFORD "JACK" RHYMER Box 2261, Greenville, S. C.

	8 Denier Bright	15 Denier Dull	15 Denier Bright
Cloud Grey	.46	.46	....
Sandalwood	.46	.46	....
Nutria	.46	.46	....
Sea Green	.46	.46	....
Mint Green	.46	.46	....
Champagne	.46	.46	....
Midnight Black	.46	....	.46
Gold	.49	.49	....
Turquoise	.46	.46	....
Meion	.49	.49	....
Capri Blue	.46	.46	....
Charcoal Grey	.46	.46	....
Coco	.47	.47	....
Sable	.48	....	.48
Tangerine	.66	....	.66
Chinese Red	.66	....	.66
Larkspur Blue	.46	.46	....
Royal Blue	.66	....	.66
Lemon Peel	.55	.55	....
Kelly Green	.52	.52	....
Bitter Green	.66	....	.66

Terms: Net 30 days. Prices are quoted f.o.b. shipping point, lowest cost of transportation allowed, or prepaid. To points West of the Mississippi, lowest cost of transportation allowed to the Mississippi River crossing.

"Zantrel" Polynosic Rayon

Effective August 14, 1959

Man-made, polynosic, cellulosic staple.

Semi-Bright, 1 denier, 1 9/16"	\$.50 per lb.
1 1/2 denier, 1 1/4" and 1 9/16"	.47 per lb.
3 denier, 1 9/16" and 2"	.47 per lb.

Terms: Net 30 days. Prices are quoted f.o.b. shipping point, lowest cost of transportation allowed, or prepaid. To points West of the Mississippi, lowest cost of transportation allowed to the Mississippi River crossing.

North American Rayon Corporation

Current Prices Effective Dec. 23, 1959

Rayon Staple

Super High Tenacity	Bright
No. 1 (Unshrunk)	....
1, 1.5 & 3 deniers	.40
No. 2 (Preshrunk)	....
1, 1.5 & 3 deniers	.40

Rayon Tow

High Tenacity	
2200 denier, 1.0 and 1.5 D/F	57.5
4400 denier, 1.0 and 1.5 D/F	47.5

Prices are subject to change without notice.

TRIACETATE

Celanese Fibers Company

Current Prices Effective June 7, 1957

(Most Deniers Available in Bright or Dull Luster)

Arnel Staple and Tow

Arnel Triacetate Staple	Bright & Dull
2.5 Individual Denier	\$.55
5.0 Individual Denier	.55
Arnel Triacetate Tow	
2.5 Individual Denier	\$.60
114,000 Total Denier	
5.0 Individual Denier	.60
90,000 Total Denier or	
180,000 Total Denier	

Packaged on Ball Warps

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. east of Mississippi River. Transportation prepaid to any U.S.A. destination west of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

NON CELLULOSIC YARN

NYLON

Allied Chemical Corporation

Caprolan®

Effective December 23, 1959

Denier	Fila- ment	Turn/ In.	Twist	Type**	Package	1st Grade Price/Lb.
200	16	1 1/2	Z	B	Cone*	\$1.49
200	16	1 1/2	Z	B	Beams	1.54
200	32	3/4	Z	B	Bobbins	1.49
200	32	3/4	Z	B	Beams	1.54
520	32	1	Z	B	Bobbins	1.39
520	32	1	Z	B	Beams	1.44
840	136	1/2	Z	HBT	Al. Tubes	.97
840	136	1/2	Z	HBT	Beams	.97
1680	272	1/2	Z	HBT	Al. Tubes	.94
1680	272	1/2	Z	HBT	Beams	.94
1080	56	1/2	Z	HB	Al. Tubes	1.15
2100	112	1/2	Z	HB	Al. Tubes	1.11
4200	224	0	O	HB	Paper Tubes*	1.10
2100	408	0	O	HB	Paper Tubes*	.99
2500	408	0	O	HB	Paper Tubes*	.98
3360	544	0	O	HB	Paper Tubes*	.98
4200	680	0	O	HB	Paper Tubes*	.98
5000	816	0	O	HB	Paper Tubes*	.98
5800	952	0	O	HB	Paper Tubes*	.98
7500	1224	0	O	HB	Paper Tubes*	.97
10000	1632	0	O	HB	Paper Tubes*	.97
15000	2448	0	O	HB	Paper Tubes*	.97

Terms—Net 30 days.

Price subject to change without notice.

Bobbins are invoiced at 45¢ ea.

Aluminum Tubes are invoiced at 40¢ ea.

Beams are invoiced at \$220.00.

Cradles for beams are invoiced at \$53.00.

* Paper Tubes and Cones non-returnable, no charge.

** Type is used to describe luster and tenacity.

All prices quoted F.O.B. Shipping Point.

Minimum transportation charges allowed and prepaid in Continental United States, excluding Alaska.

American Enka Corporation

Enka Nylon Yarn Prices

Effective January 1, 1960

Den./Fil.	Luster*	Twist	Package	Price Per Pound Standard Sub-
15/1	SD or D	0.5 Z	Tricot Spools	4.00
15/1	SD or D	0.5 Z	Pirns-2 lb.	3.89
20/1	SD	0.5 Z	Pirns-1 lb.	4.95
20/4-6	D	0.5 Z	Pirns-2 lb.	2.96
20/4-6	D	0.5 Z	Tricot Spools	3.07
30/6	SD	0.5 Z	Pirns-2 lb.	2.36
40/8	SD	0.5 Z	Pirns-2 lb.	2.01
40/8	SD	0.5 Z	Tricot Spools	2.11
40/8	SD-IC	0.5 Z	Pirns-2 lb.	2.10
40/10	D	0.5 Z	Pirns-2 lb.	2.06
40/10	D	0.5 Z	Tricot Spools	2.16
50/13	SD	0.5 Z	Pirns-2 lb.	1.91
50/13	SD-IC	0.5 Z	Pirns-2 lb.	2.00
70/32	B-SD	0.5 Z	Pirns-2 lb.	1.71
70/32	SD-IC	0.5 Z	Pirns-2 lb.	1.80
100/32	SD	0.5 Z	Pirns-2 lb.	1.74
100/32	SD	0.5 Z	Pirns-2 lb.	1.65
140/64-32	B-SD	0.5 Z	Pirns-2 lb.	1.60
140/64-32	B-SD	0.5 Z	Tricot Spools	1.70
140/32-64	SD-IC	0.5 Z	Pirns-2 lb.	1.69
200/16-34	B	0.6 Z	Cones-4 lb.	1.49
200/16-34	B	0.6 Z	Beams	1.54
200/32	SD-IC	0.5 Z	Cones-4 lb.	1.58
260/16-34	B	0.6 Z	Cones-4 lb.	1.49
400/68	B	0.6 Z	Cones-4 lb.	1.39
520/32	B	0.6 Z	Cones-4 lb.	1.39

* Luster: B—Bright; SD—Semi-Dull; D—Dull; IC—Improved Color.

Pirns invoiced at 25¢ or 45¢ each, depending on type. Deposits refunded upon return of pirns in good condition. Cones are not returnable. Spools, Beams and Racks are deposit carriers and remain the property of American Enka Corporation.

Terms: Net 30 days from date of invoice. Minimum common carrier transportation charges will be prepaid and absorbed to first destination in the continental limits of the United States excluding Alaska and Hawaii. In prepaying transportation charges, seller reserves the right to select carrier used.

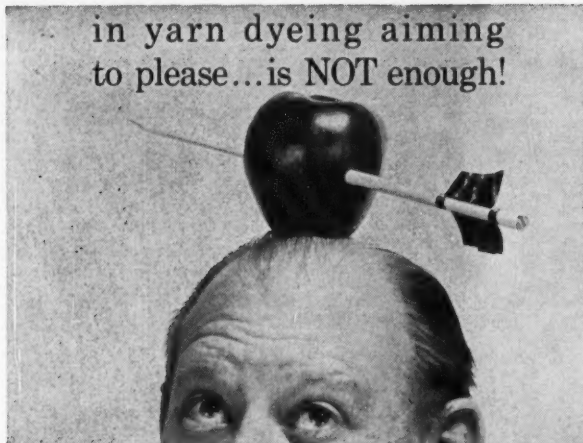
All prices subject to change without notice.

The Chemstrand Corp.

Current Prices Effective January 15, 1960

Denier	Fila- ment	Twist	Type	Package	Standard Price/Lb.	Second Price/Lb.
10	1	O	SD	Bobbins	\$8.42	\$7.81
15	1	O	SD	Bobbins	3.89	3.69
15	1	O	SD	Spools	4.00	....
15	1	O	Dull	Bobbins	3.89	3.69
15	1	O	Dull	Spools	4.00	....
20	7	Z	SD	Bobbins	2.91	2.61
30	10	Z	SD	Bobbins	2.36	2.21
30	26	Z	SD	Bobbins	2.49	2.21
40	10	Z	SD	Bobbins	2.01	1.91
40	13	Z	SD	Bobbins	2.01	1.91
40	13	Z	SD	Spools	2.11	....
40	13	O	SD	Warp Wind	2.01	1.91
40	13	Z	SD	Draw Wind	2.01	1.91
40	13	Z	Dull	Bobbins	2.06	1.96
40	13	Z	Dull	Spools	2.16	....
40	13	O	Dull	Draw Wind	2.06	1.96
50	17	Z	SD	Bobbins	1.91	1.76
50	17	O	SD	Draw Wind	1.91	1.76
50	17	Z	Brt.	Bobbins	1.91	1.76
50	17	Z	Brt.	Warp Wind	1.91	1.76
70	20	Z	SD	Bobbins	1.71	1.66
70	34	Z	SD	Bobbins	1.71	1.66
70	34	O	SD	Draw Wind	1.71	1.66
70	34	Z	SD	Warp Wind	1.71	1.66
70	34	Z	Brt.	Bobbins	1.71	1.66
70	34	O	Brt.	Draw Wind	1.71	1.66
70	34	Z	Brt.	Warp Wind	1.71	1.66
70	34	Z	HB	Bobbins	1.76	1.66
70	34	O	HB	Draw Wind	1.76	1.66
90	26	Z	SD	Bobbins	1.76	1.66
100	26	Z	SD	Bobbins	1.65	1.60
100	34	Z	SD	Bobbins	1.65	1.60
100	34	Z	HB	Bobbins	1.70	1.60
140	68	Z	SD	Bobbins	1.60	1.55
140	68	Z	Brt.	Bobbins	1.49	1.44
200	34	O	Brt.	Bobbins	1.49	1.44
200	34	Z	Brt.	Draw Wind	1.54	....
200	34	Z	SD	Spools	1.54	....
210	34	Z	SD	Bobbins	1.56	1.46
210	34	Z	HB	Bobbins	1.49	1.44
210	34	O	HB	Draw Wind	1.49	1.44
210	34	Z	HB	Warp Wind	1.49	1.44
210	34	Z	HB	Spools	1.54	....
210	34	Z	HB	Beams	1.54	....
210	34	Z	RHB	Bobbins	1.59	1.44
260	17	Z	HB	Bobbins	1.49	1.39
260	17	Z	HB	Beams	1.54	....
420	68	Z	HB	Bobbins	1.39	1.29
420	68	Z	RHB	Bobbins	1.49	1.29
520	34	Z	HB	Bobbins	1.39	1.29
630	102	Z	HB	Tubes	1.39	1.29
630	102	Z	HB	Beams	1.39	....
720	140	Z	RHB	Tubes	1.04	1.01
720	140	Z	RHB	Beams	1.04	1.01
780	51	Z	HB	Tubes	1.39	1.29
840	140	Z	HB	Tubes	.97	.94
840	140	Z	HB	Beams	.97	.94
840	140	Z	HB	Cones	1.01	.94
840	140	Z	RHB	Tubes	.97	.94

in yarn dyeing aiming
to please...is NOT enough!



ATLANTIC "hits the mark" for
color accuracy every time!

YARN DYEING

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Cakes • Packages • Skeins

Custom-matched colors. Large dye batches.
Any degree of color fastness. Packaged as desired.

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Rayon Corporation

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PLANT: 86 CRARY ST., PROVIDENCE, R. I.

American Enka Wire Unit

American Enka Corp., rayon and nylon manufacturer, has formed the William Brand-Rex Division, representing a consolidation of two subsidiaries, in a move to combine and integrate its activities in the plastic-covered wire and cable field. The division will have new executive offices at Concord, Mass., and will operate plants in West Acton, Mass.; North Windham, Conn., and Santa Monica, Calif. Gilbert E. Bell, formerly Rex Corp. president, is the new division's director of marketing; Alfred E. Brand, formerly William Brand & Co. president, is director of manufacturing, and Robert J. Rodday, formerly Rex executive president, is director of administration and development.

Polypropylene Imports

Montecatini has announced it is importing into the U.S.A. isotactic polypropylene fibers and fiber grade resin in sample quantities. The new Montecatini polymer is being produced in commercial quantities in Terni, Italy, where the material also is processed into staple and continuous filament and marketed there as "Meraklon."

The Meraklon fiber is being sampled in limited quantities in this country for use in carpets and rugs, upholstery fabrics, blankets, overcoats and plaids, woolens, knits, suitings, and the like. Chemore Corp., the Montecatini sales representative in the U.S.A., reports that the wool-like polypropylene and polypropylene-wool blends show good wrinkle resistance, light weight, strength and good hand. Blends with cotton and rayon are said to have good mechanical and elastic properties. For further information write the editors.

APRIL, 1960

Textile Curriculum Broadened

North Carolina State College's School of Textile has revised its textile management curriculum. The revisions will provide textile graduates with a broad understanding of business management in addition to a basic knowledge of textile materials and processes. Dean M. E. Campbell said the school has been aware of the need for such a revision for some time. "We will emphasize fundamentals, rather than applications and techniques, and we are certain that this curriculum revision will answer a long-felt need for many students who will become tomorrow's leaders in the field."

'Antron' Nylon Fiber

"Antron" has been adopted by Du Pont as the trademark for a new type of nylon fiber having a tri-lobal cross section. Applications have been made for patents covering the new product, the first nylon textile fiber the company has distinguished with a trademark since it introduced nylon in 1939.

Advantages of Antron are said to include: for dress fabrics—a pleasant hand, tri-dimensional highlights, clear print definition; for foundation garment fabrics—the benefit of the fiber's influence on hand and wicking action; for women's uniform fabrics—greater opacity and cover; for shell and fleece fabrics for men's outer jackets—dry hand and greater opacity, and for upholstery fabrics—greater covering power and higher luster.

Other qualities include drape, dyeability and wash-and-wear properties comparable to those of ordinary Du Pont nylon. Described as a non-round cross section multifilament when first announced last December 4, the new yarn is priced at 5 to 10 cents a pound above comparable yarns of ordinary nylon.



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*T.N.

840	140	Z	RHB	Beams	.97	.94
840	140	Z	RHB	Cones	1.01	.94
840	140	Z	HB	Paper Tubes	1.01	.94
840	140	Z	RHB	Paper Tubes	1.01	.94
840	140	Z	RHB	Textile Grade		
				—W. W.	1.12	1.01
1040	68	Z	SD	Tubes	1.15	1.05
1040	68	Z	HB	Tubes	1.15	1.05
1050	170	Z	HB	Tubes	.97	.94
1050	170	Z	RHB	Tubes	.97	.94
1680	280	Z	HB	Tubes	.94	.91
1680	280	Z	HB	Beams	.94	.91
1680	280	Z	RHB	Tubes	.94	.91
1680	280	Z	RHB	Beams	.94	.91
1680	280	Z	RHB	Cones	.97	.94

* Types: D—Dull; SD—Semi-dull; B—Bright; H—High tenacity.
Bobbins are invoiced at 25¢ or 45¢ depending on type; tubes are invoiced at 40¢ each; spools invoiced at \$95.00, \$110.00, and \$115.00, depending on type; and beams and crates for beams are invoiced at \$220.00 and \$25.00 respectively.

Prices subject to changes without notice.

Freight prepaid within Continental United States and Puerto Rico.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Nylon Yarn

Denier & Filament	Turns/Inch & Twist	Type	Package	1st Grade	2nd Grade
7-1	0	200	Bobbin	\$9.47	\$8.82
10-1	0	200	Bobbin	8.42	7.82
12-1	0	200	Bobbin	7.35	6.85
15-1	0	200	Beam	4.00	
15-1	0	200	Bobbin	3.89	3.69
15-1	0	680	Beam	4.00	
15-1	0	680	Bobbin	3.89	3.69
20-1	0	200	Bobbin	4.95	4.50
14-2	0.22	200	Bobbin	7.90	7.30
17-2	0.22	200	Bobbin	7.05	6.50
20-2	0.22	200	Bobbin	5.55	5.05
15-3	0.22	200	Bobbin	6.10	5.60
21-3	0.22	200	Bobbin	5.48	5.05
20-7	0.52	200	Bobbin	2.91	2.61
20-7	0.52	200	Beam	3.02	
20-7	0.52	680	Bobbin	2.96	2.61
20-7	0.52	680	Beam	3.07	
20-20	0.72	209	Bobbin	6.00	
28-4	0.22	200	Bobbin	2.81	2.61
40-10	0.52	200	Tricot Beams	2.11	
30-10	0.52	200	Bobbin	2.36	2.21
30-10	0.52	200	Tricot Bms.	2.46	
30-10	0.52	300	Bobbin	2.51	2.36
30-10	0.52	680	Bobbin	2.41	2.21
30-10	0.52	680	Tricot Bms.	2.51	
30-26	0.52	200	Bobbin	2.49	2.21
30-26	0.52	200	Tricot Beams	2.59	
40-1	0	100	Bobbin	4.03	3.75
40-7	0.52	200	Bobbin	2.11	1.91
40-10	0.52	200	Bobbin	2.01	1.91
40-13	0.52	200	Bobbin	2.01	1.91
40-13	0.52	200	Tricot Bms.	2.11	
40-13	0.52	400	Bobbin	2.13	1.90
40-13	0.52	680	Bobbin	2.06	1.96
40-13	0.52	680	Tricot Bms.	2.16	
40-34	0.52	200	Bobbin	2.21	1.81
50-10	0.52	200	Bobbins	2.11	1.76
50-17	0.52	100/200	Bobbin	1.91	1.76
50-17	0	200	Tubes	1.91	1.76
50-17	0.52	680	Bobbin	2.01	1.76
60-20	0.52	200	Bobbin	1.82	1.65
60-34	0.52	300	Bobbin	1.86	1.76
70-17	0.52	200	Bobbin	1.71	1.66
70-34	0	100	Tubes	1.71	1.66
70-34	0.52	100/200	Bobbin	1.71	1.66
70-34	0	105/205	Paper Tube	1.71	1.66
70-34	0	200	Tubes	1.71	1.66
70-34	0.52	280	Bobbin	1.71	1.66
70-34	0.52	300	Bobbin	1.76	1.66
70-34	0.52	680	Bobbin	1.76	1.66
70-34	0	680	Tubes	1.76	1.66
80-26	0.52	200	Bobbin	1.71	1.60
90-26	0.52	200	Bobbin	1.76	1.66
100-34	0.52	200	Bobbin	1.65	1.60
100-34	0.52	300	Bobbin	1.70	1.60
100-34	0	300	Tubes	1.70	1.60
100-34	0.52	680	Bobbin	1.70	1.60
100-50	0.52	200	Bobbin	1.71	1.60
110-50	0.52	200	Bobbin	1.71	1.60
140-68	0.52	100	Bobbins	1.60	1.55
140-68	0	200	Tubes	1.60	1.55
140-68	0.52	200	Bobbin	1.60	1.55
140-68	0	205	Tube	1.60	1.55
140-68	0.52	300	Bobbin	1.65	1.55
200-20	12	100	Bobbin	1.49	1.44
200-34	0	100	Tubes	1.49	1.44
200-34	0.72	100	Bobbin	1.49	1.44
200-34	0	105	Tube	1.49	1.44
200-34	0.72	680	Bobbin	1.54	1.44
200-68	0.72	100/200	Bobbin	1.56	1.46
210-34	0	300	Tubes	1.49	1.44
210-34	0.72	300	Bobbin	1.49	1.44
210-34	0.72	300	Beam	1.54	
210-34	0	305	Tube	1.49	1.44
210-34	0.72	330	Bobbin	1.59	1.44
260-17	12	300	Bobbin	1.49	1.39
400-68	0.72	100	Bobbin	1.39	1.29
420-68	12	300	Bobbin	1.39	1.29
420-68	12	300	Beams	1.44	
520-34	12	300	Bobbin	1.39	1.29
630-102	0.72	300	Bobbin	1.39	1.29
780-51	12	300	Bobbin	1.39	1.29
800-140	0.52	100	Bobbin	1.39	1.29
840-140	0.52	300/700	Al. Tbs. & Beams	.97	.94
1680-280	0.52	300/700	Al. Tbs. & Beams	.94	.91

Color-Sealed Yarn

Denier & Filament	Turns/Inch & Twist	Type	Package	1st Grade	2nd Grade
30-10	0.52	140	Bobbin	\$2.71	\$2.56

40-13	0.52	140	Bobbin	2.36	2.16
70-34	0.52	140	Bobbin	2.06	2.01
100-34	0.52	140	Bobbin	2.00	1.95
100-34	0	140	Tubes	2.00	1.95
200-20	0.72	140	Bobbin	1.84	1.79
200-34	0.72	140	Bobbin	1.84	1.79
260-17	12	140	Bobbin	1.84	1.79

Industrial Yarn

840-140	0.52	*707	Cone	.97
5040-840	0	*707	Paper Tube	1.01
7560-1260	0	*707	Paper Tube	1.00
10080-1680	0	*707	Paper Tube	1.00
15120-2520	0	*707	Paper Tube	1.00

* Made specifically for cordage use.

2520-420	0	700	Paper Tube	.99
4200-700	0	700	Paper Tube	.98
5040-840	0	700	Paper Tube	.98
7560-1260	0	700	Paper Tube	.97
10080-1680	0	700	Paper Tube	.97
15120-2520	0	700	Paper Tube	.97

These prices are subject to change without notice. Terms: Net 30 Days.

Types

- Type 100—Bright, normal tenacity.
- Type 105—Bright, normal tenacity, low shrinkage (5-7%)
- Type 140—Bright, color-sealed, black, normal tenacity.
- Type 200—Semidull, normal tenacity.
- Type 205—Semidull, normal tenacity, low shrinkage (5-7%)
- Type 209—Semidull, normal tenacity, improved light durability and dye light fastness.
- Type 280—Semidull, normal tenacity, improved light durability and dye light fastness.
- Type 300—Bright, high tenacity.
- Type 305—Bright, high tenacity, low shrinkage (5-7%)
- Type 330—Bright, high tenacity, more heat & light resistant.
- Type 400—Semidull, high tenacity.
- Type 680—Dull, normal tenacity.
- Type 700—Bright, high tenacity.
- Type 707—Bright, high tenacity cordage yarn.

Freight Terms—Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

Following are invoiced as a separate item.

Bobbins—25 cents or 45 cents depending on type

Aluminum Tube—40¢ each

Draw Winder Tubes—\$.70 or \$1.00 depending on type

Tire Cord Beams—\$220.00 each

Cradles for Tire Cord Beams—\$115.00 each

Tricot Beams—\$95.00 each

Cradles for Tricot Beams—\$130.00 each

(Beams and Cradles are deposit carriers and remain the property of

E. I. du Pont de Nemours & Co., Inc.)

POLYESTER

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Dacron"™

Denier & Filament	Turns/Inch	Luster	Type*	Tubes 1st Gr.
30-14	0	Bright	55	\$2.71
30-20	0	Semidull	56	2.71
40-27	0	Semidull	56	2.31
40-27	0	Bright	55	2.31
40-27	0	Dull	57	2.36
70-34	0	Semidull	56	1.91
70-14	0	Bright	55	1.91
70-34	0	Bright	55	1.91
70-34	0	Dull	57	1.96
100-34	0	Semidull	56	1.84
140-28	0	Bright	55	1.79
150-34	0	Semidull	56	1.79
220-50	0	Bright	51	1.76
250-50	0	Bright	55	1.76
1100-250	0	Bright	51	1.50
1100-250	0	Bright	52	1.50

Terms: Net 30 days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the Continental limits of the U. S., excluding Alaska.

Yarn Types

* Type:

Type 51—Bright, high tenacity.

Type 52—Bright, high tenacity.

Type 55—Bright, normal tenacity.

Type 56—Semidull, normal tenacity.

Type 57—Dull, normal tenacity.

Tubes are invoiced as a separate item at \$.70 each.
* "DACRON" is DuPont's registered trade-mark for its polyester fiber.

SARAN

The National Plastics Products Company—

Fibers Division

Odenton, Maryland

Current Prices:

CONTINUOUS FILAMENT

Type	Twist p. l.	Natural	Colors
1240/10	3	\$1.32	\$1.37
750/20*	3	1.75	1.80

* For filter fabrics and other industrial purposes only.

F.O.B. Odenton, Maryland.

Terms: Net 30 days.

NON CELLULOSIC STAPLE & TOW

ACRYLIC

American Cyanamid Co.

Fibers Division

Effective Date: November 24, 1959

Cyanamid Acrylic Staple

	1st Grade Price (per pound)
2.0 Denier Bright and Semi-Dull	\$1.28
3.0 Denier Bright and Semi-Dull	1.18
5.0 Denier Bright and Semi-Dull	1.18
15.0 Denier Bright, Semi-Dull and Dull .....	.93

Staple Lengths: 1½", 2", 2½", 3", 3½", 4", 4½".

Information provided on request for Deniers, Lengths and Lustres not listed above.

Prices are subject to change without notice.

Terms: Net 30 Days.

F.O.B. Shipping Point—Minimum transportation allowed (Seller's route and method) within the continental limits of the United States excluding Alaska. If Buyer requests and Seller agrees to a route or method involving higher than minimum rate, Buyer shall pay the excess transportation cost.

Note: CRESLAN® is Cyanamid's registered trademark for certain of its acrylic fibers. Use of this trademark is authorized only on properly constructed fabrics, after they have been tested and approved by Cyanamid.

The Chemstrand Corp.

Current Prices "Acrilan"™

Effective January 1, 1959

	Acrilan	Acrilan 16
2.0 denier Semi-Dull and Bright staple & tow	\$1.18	\$1.18
2.5 denier Hi-Bulk Bright and Semi-dull staple and tow	1.18	1.18
3.0 denier Bright & Semi-dull staple & tow	1.18	1.18
5.0 denier Bright & Semi-dull staple & tow	1.18	1.18
8.0 denier Bright & Semi-dull staple	1.18	1.18
15.0 denier Bright & Semi-dull staple	.93	.97

Terms: Net 30 days. Freight prepaid within Continental U. S. & Puerto Rico.

* "Acrilan" is Chemstrand's registered trademark for its acrylic fiber.

The Dow Chemical Company

Textile Fibers Department

Current Prices

"Zefran"™

2.0 denier Semidull & Bright—Staple only	\$1.28
3.0 denier Semidull & Bright—Staple only	1.28
6.0 denier Semidull & Bright—Staple only	1.18
100% Blends of ZEFFRAN acrylic fiber (For the Woolen System)	
Type W-2 (average denier of about 2.5)	\$0.99
Type W-4 (average denier of about 4.5)	.94

Terms: Net 30 days.

Transportation Terms: F.O.B. shipping point—Freight prepaid our route within the continental limits of the U. S., excluding Alaska.

* "Zefran" is Dow's registered trademark for its acrylic fiber.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Orlon"™ Acrylic Staple & Tow

Type 42	Staple Length	Tow Blds.	1st Grade
1.0 Denier Semidull	1½, 1½, 2, 2½, 3	420M	\$1.28
2.0 Denier Semidull & Bright	1½, 1½, 2, 2½, 3, 4½	470M	1.28
3.0 Denier Semidull & Bright	1½, 1½, 2, 2½, 3, 4½	470M	1.28
3.0 Denier Color-sealed Black	1½, 1½, 2, 2½, 3, 4½	470M	1.63
6.0 Denier Semidull & Bright	1½, 2, 2½, 3, 4½	470M	1.18
6.0 Denier Color-sealed Black	1½, 2, 2½, 3, 4½	470M	1.55
4.5 Denier Semidull	1½, 2, 2½, 3, 4½	470M	1.18
10.0 Denier Semidull & Bright	1½, 2, 2½, 3, 4½	470M	1.18
10.0 Denier Color-sealed Black	1½, 2, 2½, 3, 4½	470M	1.55

Tow—Total Denier 470,000

Staple Lengths—1½", 2", 2½", 3", 4½"

High Shrinkage Staple price as Regular Staple

Type 25 This product is designed for Cotton/Rayon System Spinning and is 2.5 denier, 1½" semidull regular shrinkage staple.

Type 38—4.1 Denier—Semidull—592M Tow This product can be dyed, stretched and cut to produce staple which will shrink as much as 38% when subjected to heat.

Type 39 This product is designed for woolen system spinning and is a blend of deniers (average 4.2) with a variable cut length.

Type 39A This product is designed for woolen system spinning and is a blend of predominately fine deniers (average 2.4) with a variable cut length.

Type 39B This product is designed for woolen system spinning and is a blend of predominately heavy deniers (average 6.5) with a variable cut length.

F.O.B. Shipping Point—Freight prepaid our route within the continental limits of the United States, excluding Alaska.

** "ORLON" is Dupont's Registered Trade-mark for its Acrylic Fiber.

MODACRYLIC

Eastman Chemical Products, Inc.

Tennessee Eastman Co.

Effective November 3, 1958

"Verel"™ Staple and Tow

Deniers	Dull and Bright
3	\$1.02 per pound
5, 8, and 12	.92
16 and 20	.88
24 denier	.93

Prices are subject to change without notice.

Terms: Net 30 days. Payment—U. S. A. dollars.

Transportation charges prepaid or allowed to destination in continental United States, except Alaska. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.

* "Verel" is a trade-mark of the Eastman Kodak Co.

Union Carbide Chemicals Co.

Div. Union Carbide Corp.

Textile Fibers Dept.

Effective October 1, 1957

Dynel Staple & Tow

Natural Dynel	
3, 6, and 12 Denier, Staple and Tow	1.10 per lb.
24 Denier, Staple and Tow	1.05 per lb.
Dynel Spun with Light Colors:	
Blond, Pewter, or Gray	
3 and 6 Denier, Staple and Tow	1.30 per lb.
Dynel Spun with Dark Colors:	
Black, Charcoal, Brown, Caramel, Green, and Blue	
3 and 6 Denier, Staple and Tow	1.40 per lb.
Dynel Type 63 High Shrinkage (3 Denier only)	Add \$.05 per lb. to above prices

Prices are quoted f.o.b. South Charleston, W. Va.

NYLON

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Nylon Staple and Tow

Denier	Type	Staple Lengths	Tow Bundle	1st. Grade Price/Lb.	2nd Grade Staple Only
1.5	200	1½"—4½"	None made	\$1.33	\$1.18
1.5	201	1½"—4½"	None made	1.35	1.20
2.3	420	1½" only	None made	1.28	1.13
3.0	100/200	1½"—4½"	430M	1.28	1.13
3.0	101/201	1½"—4½"	455M	1.30	1.15
6.0	100	1½"—6½"	330M	1.28	1.13
6.0	101	1½"—6½"	345M	1.30	1.15
15.0	100	1½"—6½"	425M	1.08	
15.0	101	1½"—6½"	None made	1.10	
15.0	600	1½"—6½"	425M	1.10	
15.0	601	1½"—6½"	None made	1.12	

Staple lengths are restricted to the range shown opposite each denier above. The actual cut lengths within these ranges are as follows:

1½, 1½, 2, 2½, 3, 4½ and 6½

Types

Type 100 Bright, normal tenacity, not heatset.

Type 101 Bright, normal tenacity, heatset.

Type 200 Semidull, normal tenacity, not heatset.

Type 201 Semidull, normal tenacity, heatset.

Type 420 Semidull, high tenacity, high modulus, no crimp.

Type 600 Dull normal tenacity, not heatset.

Type 601 Dull normal tenacity, heatset.

These prices are subject to changes without notice.

Terms—Net 30 Days.

Freight Terms—Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

Industrial Rayon Corp.

Effective August 18, 1958

Nylon Staple

1.5 denier	\$1.33 per lb.
2, 3 and 6 denier	1.28 per lb.
8 denier	1.15 per lb.
15 and 22 denier	1.08 per lb.

Bright, semi-dull, and full-dull. Required lengths.

NYTRIL

Celanese Fibers Company

DARVAN

Effective Nov. 21, 1958

Type	Net Crimp Set	Price Per Pound	Crimp Set
3, 4½ and 6 Denier	\$1.45		\$1.50
1½, 2 Denier	\$1.50		\$1.55
	Pack in 100 Lb. Bales, Net		
	Staple lengths 1½, 2, 3, 4½		
	Tow—90,000 Total Denier		
	Bright, Semi-dull, Dull		

(Deniers and lengths of staple not listed above are available upon special request.)

Terms: Net 30 Days.

F.O.B. Shipping Point (Avon Lake, Ohio) Minimum freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if overland, or port of exit of purchaser's choice east of the Mississippi River.

POLYESTER

Beaunit Mills Inc.

Vycron Polyester

Effective: November 20, 1959

	Denier	Price Per Lb.
	1.5	\$1.26
	3.0	1.36
Staple Cuts are 1½", 2", 3", and 4".		
Tow for Converters (Tow Bundle 200,000 Denier)	1.5	1.26
	3.0	1.36
Tow Yarn for Direct Spinners and Coarse Denier Yarns	1 Den.	
	1.5 Den.	\$ Den.
	420/280	420/140
	840/560	840/280
	1120/1120	1120/1120
No Twist Tubes	1260/840	1260/420
	1680/1120	1680/560
	2240/2240	2240/2240
	3360/2240	3360/1120



Smoothness Tester

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Our rigid maintenance of specified micro-inch finish assures the most advanced standard of smoothness available in spinning rings today.

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SPINNING DIAMOND RING CO.
Makers of Spinning and Finish Twister Rings since 1873

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NO YARN TRAPPING WITH BRAZED ALUMINUM TWO POUND TAKE-UP BOBBIN



New aluminum take-up bobbin with barrel and heads brazed together into a single unit prevents yarn trapping. Exceptional strength at price no higher than ordinary bobbins.

Write us today for full details.



ALLENTOWN BOBBIN WORKS, INC.
 ALLENTOWN PENNSYLVANIA

Terms: Net 30 days, F.O.B. shipping point. Minimum freight allowed to consignee's nearest freight station east of the Mississippi River. To points west of the Mississippi River minimum freight to Memphis, Tenn. allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point. Prices subject to change without further notice.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Dacron"*** Staple and Tow

Denier	Luster	Type*	Length	Tow Bundle	1st Gr.
1.25	Semidull	54	1 1/4"-3"	None made	\$1.36
1.5	Semidull	64	Tow only	550M	1.41
1.5	Semidull	54	1 1/4"-1 1/2"	None made	1.26
2.25	Semidull	54	1 1/4"-4 1/2"	450M	1.41
3.0	Semidull	64	1 1/4"-4 1/2"	450M	1.41
3.0	Semidull	54	1 1/4"-4 1/2"	450M	1.36
3.0	Semidull	61	1 1/4"-4 1/2"	None made	1.36
4.5	Semidull	64	1 1/4"-4 1/2"	450M	1.36
4.5	Semidull	54	1 1/4"-4 1/2"	450M	1.31
6.0	Semidull	64	1 1/4"-4 1/2"	450M	1.36
6.0	Semidull	54	1 1/4"-4 1/2"	450M	1.31
6.0	Semidull	61	1 1/4"-4 1/2"	None made	1.31

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Type 54—Semidull, Normal Tenacity.

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American Viscose Corp. Effective October 1, 1956

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3.0 denier	1/2" unopened	\$1.80 per lb.
3.0 "	1 1/4" unopened	.80 per lb.
3.0 "	1 1/4" opened	.90 per lb.
3.0 "	2" opened	.90 per lb.
3.0 "	2" unopened	.80 per lb.
5.5 "	1" opened	.90 per lb.
5.5 "	3 1/2" opened	.90 per lb.
5.5 "	3 1/2" unopened	.80 per lb.

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2N—Upholstery	16	.74	.79
3Q—Industrial Fabrics	22	.68	.72
1C—Carpets	22	.68	.72
1M—Mops	22	.68	.72

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Calendar of Coming Events

Apr. 6—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
 Apr. 7-9—American Cotton Manufacturers Institute annual convention. American Hotel, Bal Harbor, Fla.
 Apr. 16—AATCC Southeastern Section meeting. Callaway Gardens, Pine Mountain, Ga.
 Apr. 20-22—Alabama Textile Manufacturers Association, annual meeting. Buena Vista Hotel, Biloxi, Miss.
 Apr. 21-24—National Association of Hosiery Manufacturers annual meeting. Americana Hotel, Miami Beach, Fla.
 Apr. 22—Textile Institute, annual general meeting. Midland Hotel, Manchester, England.
 Apr. 23—Textile Operating Executives of Georgia carding-spinning discussion. Georgia Tech., Atlanta, Ga.
 Apr. 26—Institute of Textile Technology, Charlottesville, Va. Meetings of Technical Advisory Committee and Board of Trustees.
 Apr. 28-30—Phi Psi National Textile Fraternity 57th annual convention. Hotel Roosevelt, New York, N. Y.
 Apr. 29—Underwear Institute annual meeting. Hotel Biltmore, New York, N. Y.
 Apr. 30—Southern Textile Association Eastern Carolina Div. meeting. N. C. State College, Raleigh, N. C.
 May 4—ACMI Fiber Testing Laboratory, open house. Clemson House, Clemson, S. C.
 May 4—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
 May 11-14—Carolina Yarn Association. The Carolina, Pinehurst, N. C.
 May 19-21—Georgia Textile Manufacturers Association, anniversary meeting. Diplomat Hotel and Country Club, Hollywood, Fla.

May 23-27—American Textile Machinery Exhibition. Auditorium, Atlantic City, N. J.
 May 25-27—Narrow Fabrics Institute, Inc. spring meeting. Atlantic City Country Club, Northfield, N. J.
 May 25-28—Tufted Textile Manufacturers Association annual convention. Fontainebleau Hotel, Miami Beach, Fla.
 May 26-28—S. C. Textile Manufacturers' Association annual meeting. The Cloister, Sea Island, Ga.
 May 31-Jun. 2—Cotton Research Clinic. Grove Park Inn, Asheville, N. C.
 Jun. 1—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
 Jun. 23-25—Southern Textile Association annual convention. Grove Park Inn, Asheville, N. C.
 Jun. 26-Jul. 1—ASTM annual meeting. Chalfonte-Haddon Hall, Atlantic City, N. J.
 Sep. 7-8—Combed Yarn Spinners Association annual meeting. Greenbrier, White Sulphur Springs, W. Va.
 Sep. 8—Textile Quality Control Association meeting. Clemson House, Clemson, S. C.
 Sep. 15—Chattanooga Yarn Association annual outing. Read House, Chattanooga, Tenn.
 Sep. 27-28—Chemical Finishing Conference, sponsored by National Cotton Council. Statler Hotel, Washington, D. C.
 Oct. 3-7—Southern Textile Exposition. Textile Hall, Greenville, S. C.
 Oct. 5-8—Carded Yarn Association annual meeting. Grove Park Inn, Asheville, N. C.
 Oct. 6-8—AATCC national convention. Sheraton Hotel, Philadelphia, Pa.

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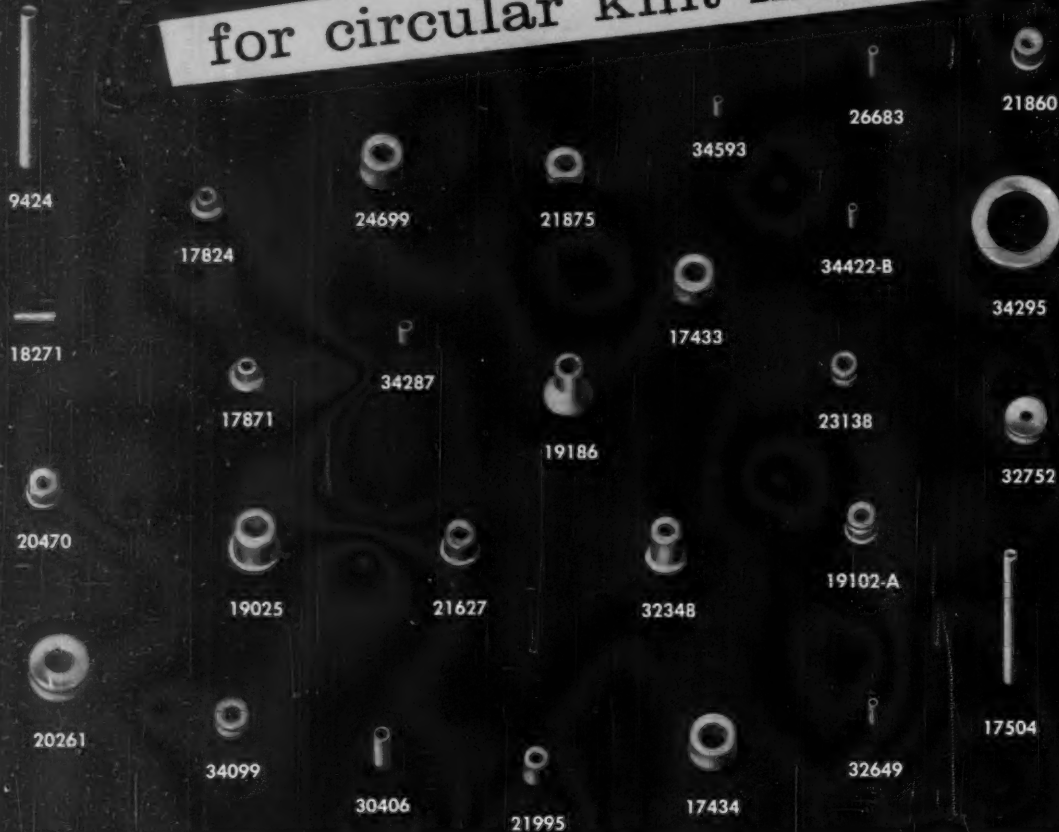
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